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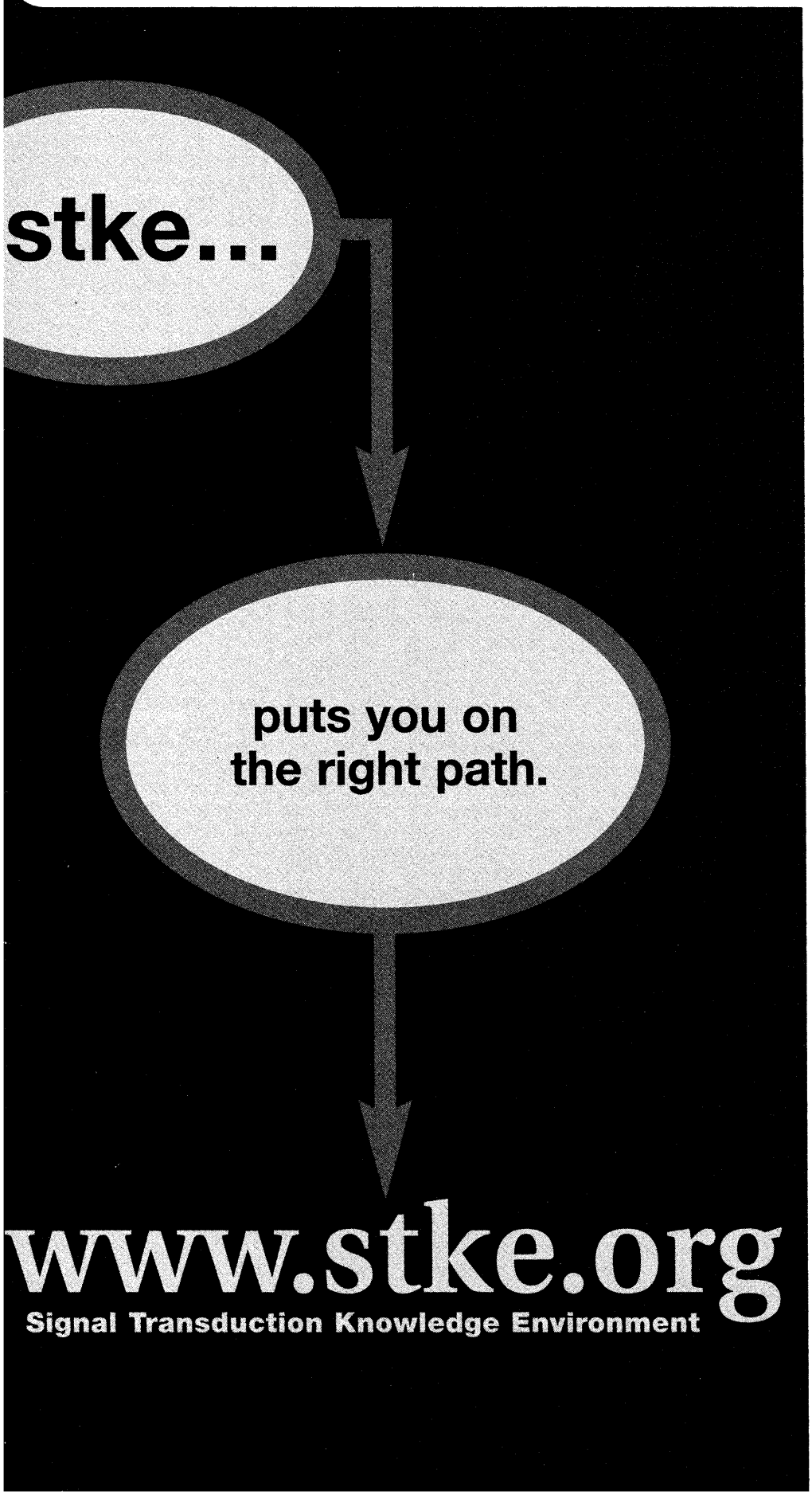

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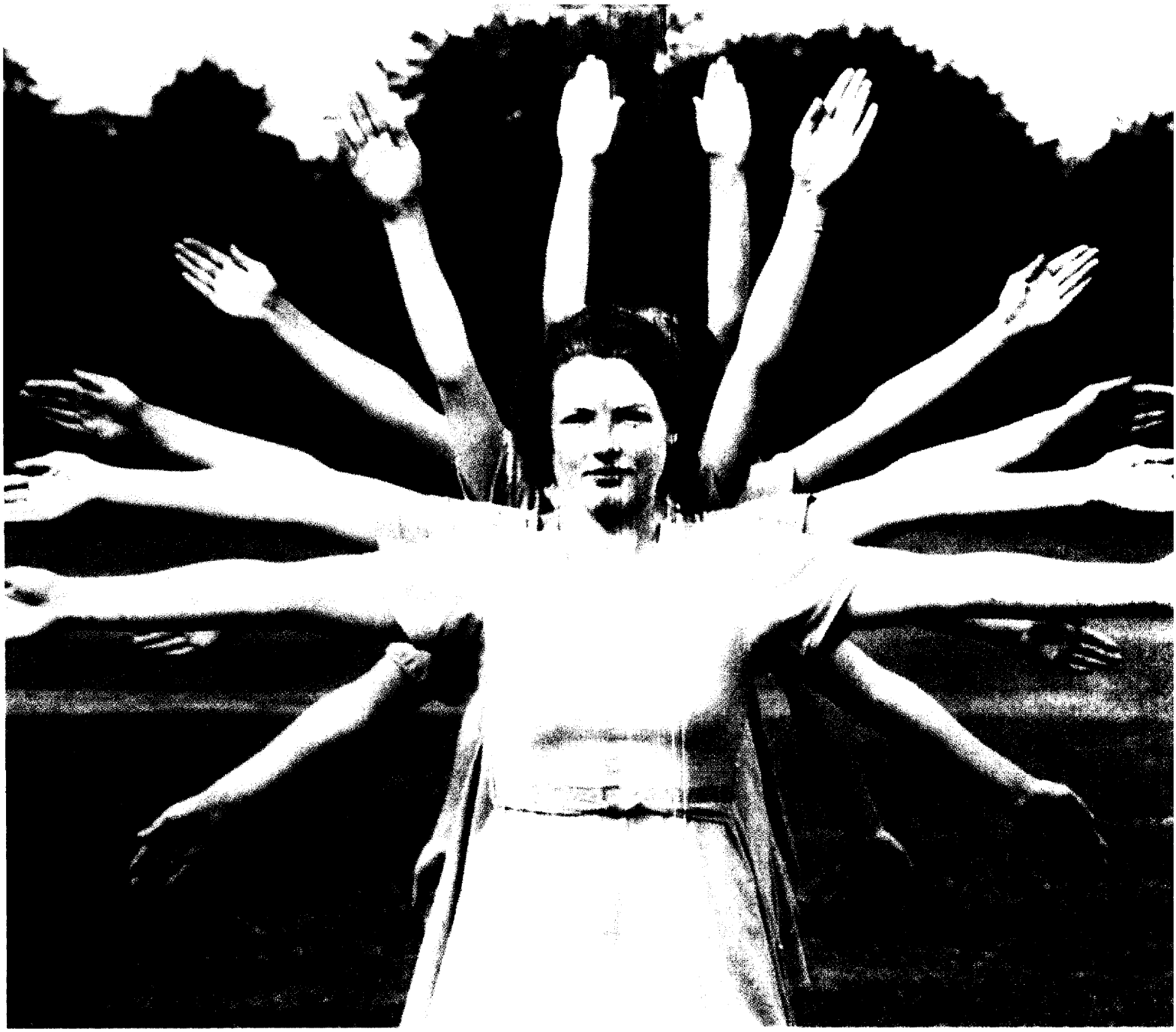

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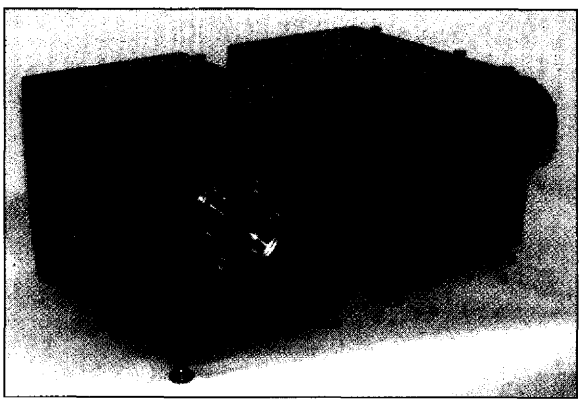

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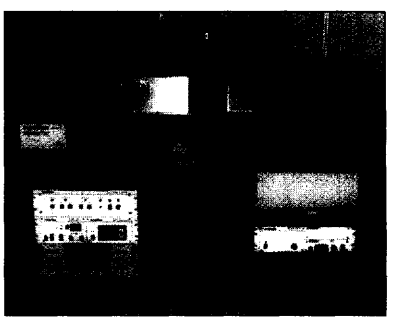

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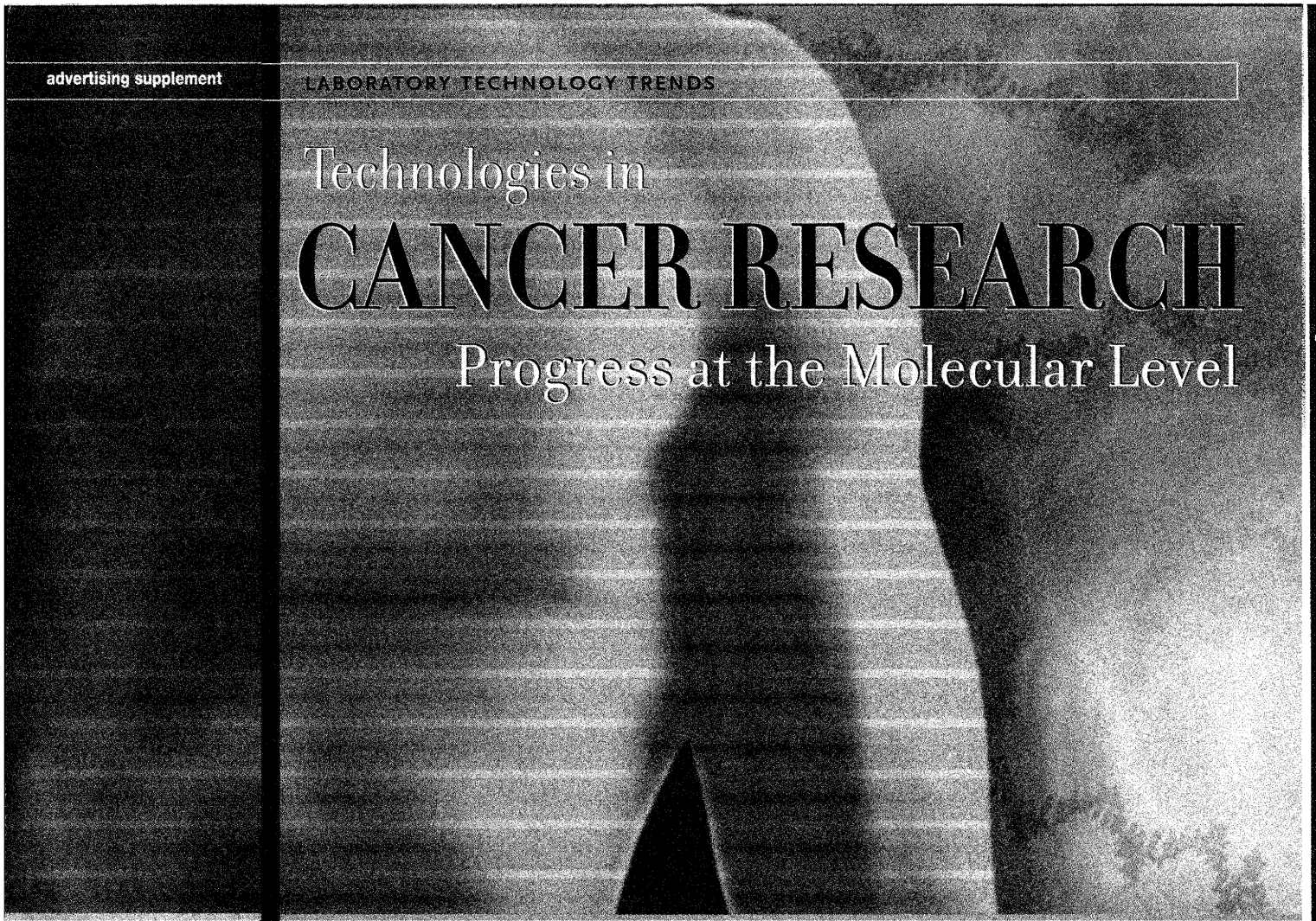

Technologies in CANCER RESEARCH

Progress at the Molecular Level

Building on advances in genetics and genomics, researchers have started to delve into the molecular bases of cancers. The work promises to make cancer a treatable chronic condition rather than a tough-to-manage acute disease.

BY PETER GWYNNE AND GARY HEEBNER

Even though it kills fewer individuals than heart disease, cancer has long ranked as Public Enemy No. 1 in the view of the general public and many health professionals. According to the World Health Organization, physicians currently diagnose 10 million new cases of cancer each year. Statistical trends indicate that this number will double by 2020. Given the fact that one in three people in the developed world will get the disease and one in four will die as a result, it comes as no surprise that the big C is the condition most feared by the public.

In the past few years a flurry of advances in several fields of life science has promised to reduce that fear. The advances offer the prospect of more effective and efficient detection, diagnosis, and treatment of cancers.

Much of the progress has occurred in molecular biology laboratories. There, techniques of molecular and cell biology, genetics, and genomics have converged to reveal how the disease develops at the levels of gene and molecule. As a result, says Robert Weinberg, professor of biology at the Massachusetts Institute of Technology and a member of the school's Whitehead Institute, "Cancer research will no longer represent a grab bag collection of complex, apparently chaotic phenomena. Instead it will soon become a logical discipline able to continued ➢

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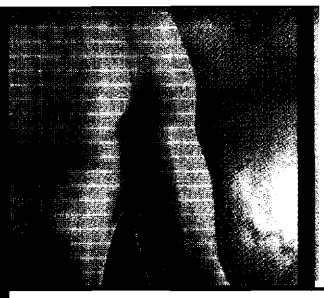

"I think that one of the most important areas in cancer research is the understanding of tumors not just as collections of autonomous cancer cells but as organs." RICHARD KLAUSNER

explain the genes and proteins driving malignant cell proliferation in terms of a small number of underlying principles."

Complementing that understanding of cancer-causing processes at the molecular level is recent work on the nature of tumors. "I think that one of the most important areas in cancer research is the understanding of tumors not just as collections of autonomous cancer cells but as organs," explains Richard Klausner, director of the National Cancer Institute (NCI). "We're beginning to realize that the molecular processes within tumor cells are influenced by the complex organ that is the tumor. These tumors represent complicated development of a complex multicellular entity."

The fundamental work has also helped researchers to stratify cancers more knowledgeably than in the past. The new technology of functional genomics offers the prospect of stratifying malignancies in ways that may prove far superior to traditional pathologies involving microscopy. The research has shown, for example, that not all breast cancers have the same molecular origin. Some may resemble certain forms of colon cancer more than they do other breast cancers. "Breast cancer and colon cancer describe the geography of cancers," explains Randy Scott, chairman of the board of Incyte Genomics. "But when we stratify these diseases and name them properly, these diseases will lose their geographic names."

TARGETED TREATMENT

That stratification points the way to better targeted treatment of cancers. Instead of blasting tumors with radiation, chemical agents, or surgical excision, all of which destroy plenty of healthy tissue along with the tumors, the pharmaceutical industry is developing drugs that will interfere only with the molecular and genetic processes that initiate the development of cancers. "At present therapies are anatomically based," points out Paul Workman, director of the CRC Centre for Cancer Therapies at The Institute of Cancer Research in Sutton, near London, United Kingdom. "I like to think that we'll move towards a medical treatment for cancer that will be genetically driven. We have the vision that a patient will have a complete gene structure and expression profile from a tumor biopsy. Then some cocktail of individualized therapy will be designed for the patient."

Individualized therapies can take several forms. Monoclonal antibodies have already moved into the medical mainstream in the form of cancer drugs Rituxan, codeveloped by biotechnology firm Genentech and IDEC Pharmaceuticals to treat non-Hodgkins lymphoma, and Herceptin, created by Genentech alone as a therapy for breast cancer. Further down the line are angiogenesis agents, designed to prevent tumors from creating new blood vessels and to attack their existing vessels. The concept of cancer vaccines has also drawn significant interest, along with some skepticism. Canada has already approved the first cancer vaccine, a compound called Melacine produced by Seattle company Corixa. And gene therapy has appeared on the horizon as a means of treating cancers, although with little indication of success so far.

The new approaches to cancer therapy will cause a significant change in the experience of patients under treatment by detecting cancers earlier than is possible today. "Today we only treat advanced states of cancer," says Les Hughes, head of discovery research for cancers and infectious disease at AstraZeneca Pharmaceuticals. "We'll now be able to treat patients earlier in the disease stage."

The treatments will also cause patients less distress. "We're entering a world in which you'll see less toxic therapies with a greater emphasis on the patients' quality of life," says Paul Maddon, chairman and CEO of Progenics Pharmaceuticals, Inc. And because tomorrow's cancer drugs will be less toxic than today's, adds Karol Sikora, vice president of global clinical research, oncology, for pharmaceutical company Pharmacia, "they'll take longer to work. Cancer will become a disease to be treated over five years or so rather than six months."

The new treatments will alter the ways in which pharmaceutical companies take on the search for new cancer drugs. The idea of a blockbuster drug that will treat a variety of cancers will go out of the window. In its place will come a philosophy of developing a range of narrowly targeted therapies. "Drugs considered 'successful' in oncology may treat as few as 10 percent of cancer patients," explains Gerard Kennealey, vice president of clinical research, oncology, for AstraZeneca Pharmaceuticals. "We're convinced that we can do that and maintain viability for the company."

Several pharmas agree with Kennealey. At present, says Sikora, "We have a lot of interesting ideas in the lab but only a very few drugs to try out on patients. After three to five years we will see a huge release of new drugs for clinical trials. The problem then will be choosing the best ones for investment."

CAUSES OF CANCER

The great promise of effective new therapies stems from the past decade of scientific research on the fundamental nature of cancer. As they become cancerous, cells take on abnormal forms in which they seem to divide continuously. In the later stages of cancer those dividing cells metastasize, invading parts of the body beyond their original locations. Researchers have implicated genetic predisposition, chemicals, and viruses in the list of possible causes for cancer. They remain unsure about the actual mechanism of this disease. However, they generally agree that understanding the processes of cell signaling and regulation of cell division are critical to finding cures for cancer.

Clinicians believe that only a relatively small percentage of the tumors they see is genetically influenced or inherited via a mutated gene from one parent or both. One of these well-studied genes, BRCA1, strongly predicts a woman's risk of developing breast or ovarian cancer. Genetic screening for this and other cancer-related genes has become a relatively simple procedure for some ethnic groups. It requires only a very small sample of the patient's serum or blood. DNA from the sample is amplified by polymerase

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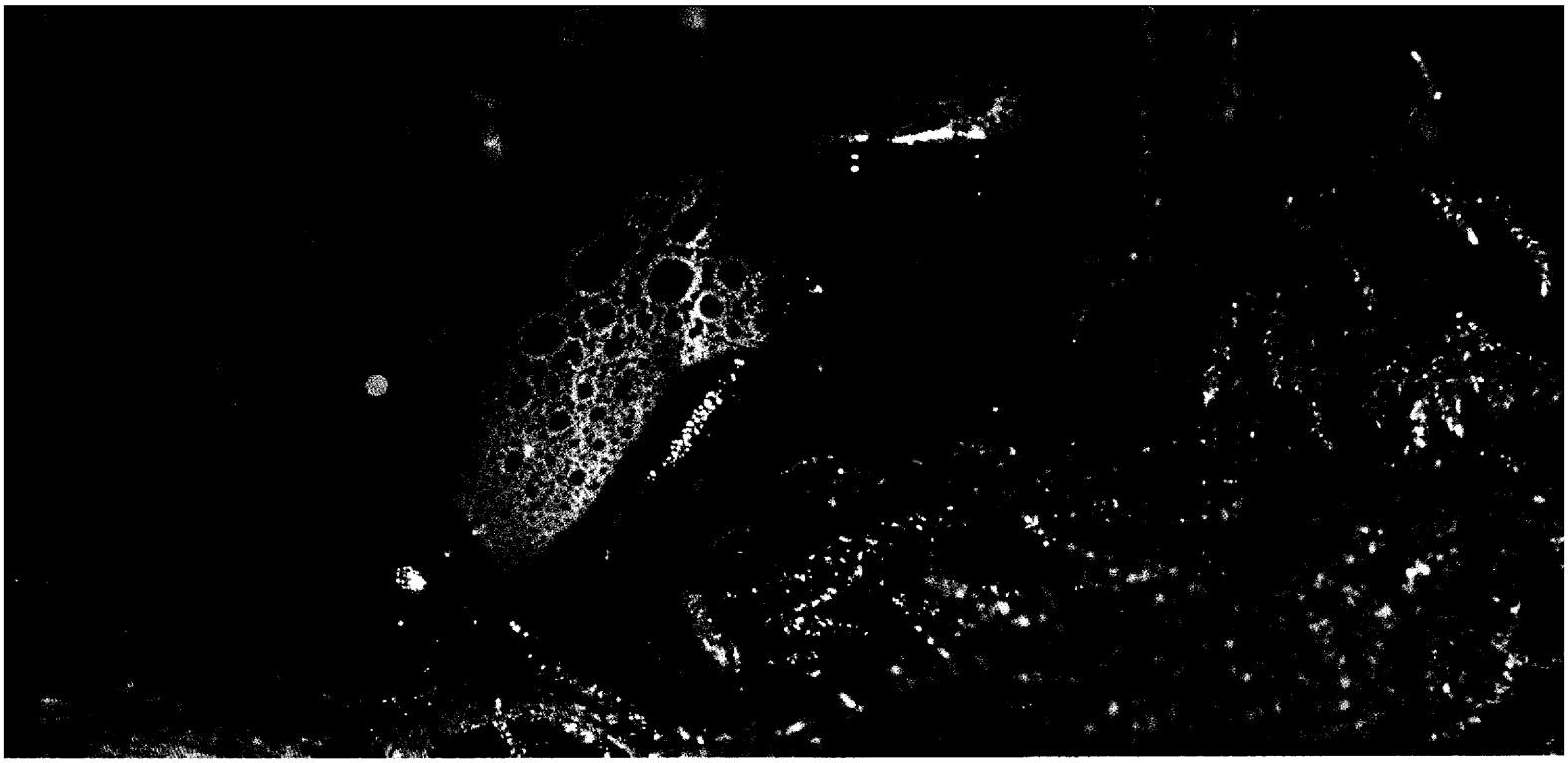

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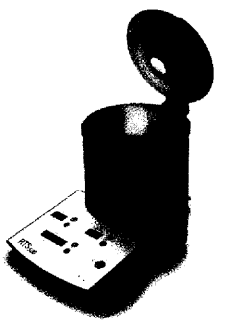

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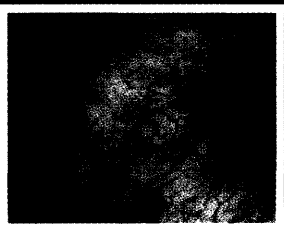

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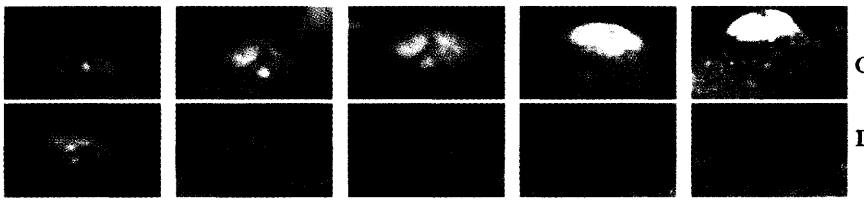

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4. Hoffman, R.M. Orthotopic metastatic mouse models for anticancer drug discovery and evaluation: a bridge to the clinic. Investigational New Drugs 17, 343-359, 1999.
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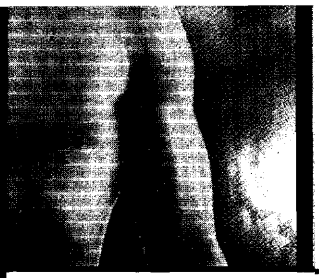

"...we're trying to work out the rules that determine how many different changes are required to convert a normal human cell into a cancer cell." ROBERT WEINBERG

chain reaction and subsequently analyzed to determine if any of the "cancer" mutations are present in the particular gene.

In contrast to genetically influenced tumors, scientists believe that the vast majority of tumors seen in the clinic result from external factors that induce mutations in individuals' DNA. External factors such as smoking, diet, exercise, stress, and radiation may affect these forms of cancer. Researchers have identified several genes that, when mutated, change the development of a cell from its normal life cycle to one that results in the formation of cancerous tissue or cells. Now that most of the human genome has been sequenced the number of mutations linked to cancer will certainly increase.

Cancer research currently focuses most strongly on biochemical pathways operating in normal and cancer cells and the ways in which they control cell division and cell death (one form of which is known as apoptosis). Every day researchers are identifying new molecules and new pathways for cell regulation and cell growth. As they identify more steps in these pathways they will provide potential new targets for therapeutic intervention to this disease.

THE BASIC TOOLS

Early cell culture studies demonstrated that attached cells grown in culture exhibit contact inhibition. In other words, they grow on a surface until they reach confluence and then stop dividing. Obviously they must communicate with each other to coexist in such an environment. Several companies supply cell culture media and reagents that permit scientists to standardize these research efforts and produce much more predictable results. Not surprisingly, culturing cells from living organisms such as mice has moved from art to a much more scientific procedure. Major suppliers of cell culture media include BioWhittaker, Invitrogen Corporation, and Sigma Chemical Company.

Commercial cell culture media usually require serum replete with undefined growth-promoting factors. Because these media introduce significant variability from lot to lot of serum, scientists find it difficult to analyze what factors cause cells to divide or become senescent. To overcome that problem laboratories can now buy serum-free (or defined) media that can sustain the growth of even some of the most finicky cells in culture. The defined nature of these media allows researchers to add specific growth factors to examine their effect on normal cells. In addition to offering defined media, most commercial suppliers will custom-develop and produce serum-free media for use in specific cell culture systems.

Microscopes have long allowed scientists to examine and discover the inner workings of cells grown *in vitro* or isolated from diseased tissue. In the early years the light microscope established a new field of medicine – pathology – that enabled scientists to study structural changes in cells and the relationship of those changes to the diagnosis of diseases such as cancer. Carl Zeiss, Leica, Nikon, and Olympus, among other manufacturers, have designed light microscopes for research and clinical use for many years.

Today, light microscopes and fluorescence microscopes remain two of the most essential tools for clinical pathologists. But while they permit researchers to see structural changes in cancer cells, microscopes cannot reveal what causes cells to become cancerous or the ways in which the inner workings of a cancer cell differ from those of normal cells. To answer those conundrums and reach rapid diagnoses of several diseases, including cancer, scientists must complement their microscopy with biochemical assays.

RULES OF PROLIFERATION

The earliest use of such assays made it clear that cancer involves not only the morphological changes visible to microscopy but also significant molecular changes in a cell's DNA. The finding that certain mutations in a cell activate tumor producing genes and inhibit tumor suppressor genes has been pivotal in understanding what happens in a cell as it changes from normal health to a state of malignancy in which it threatens to destroy its host organism.

Scientists have suggested that several essential changes in a cell's metabolism collectively determine the change from normalcy to malignancy. "In my lab we're trying to work out the rules that determine how many different changes are required to convert a normal human cell into a cancer cell," says MIT's Robert Weinberg. "I have the idea that there is a common set of rules that will influence how many types of cells in the body become cancerous. When we understand the rules we'll know how genes act in concert to create malignancy."

Weinberg guesses that research teams will be able to spell out the rules within a year. Meanwhile they know that factors involved in tumorigenesis include the cell's ability to produce its own growth factors, an insensitivity to growth inhibitors, the ability to escape apoptosis (programmed cell death), immortality, sustained angiogenesis, and the ability to invade tissue and metastasize. Each of these steps represents a breach of the defense mechanisms designed to prevent uncontrolled cell growth and tumorigenesis.

While our understanding of the signaling pathways within cancer cells is rapidly evolving,

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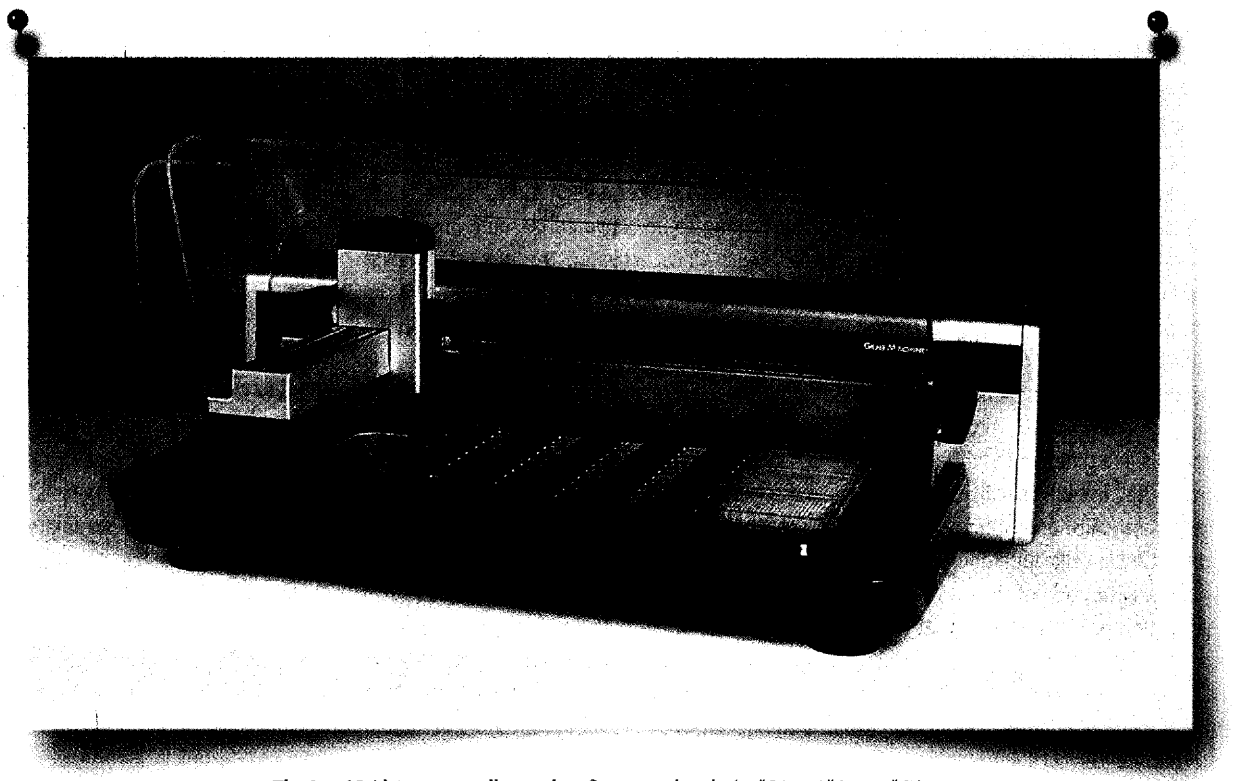

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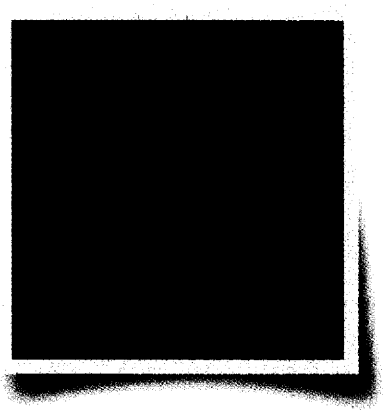

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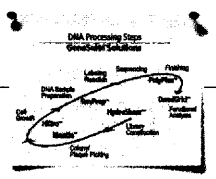

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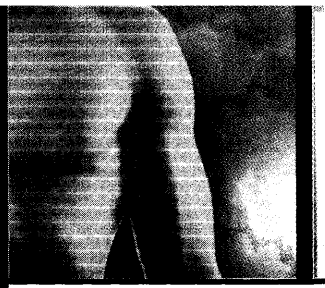

"When one looks at a tumor one sees several types of cells coexisting and collaborating to make the cancer grow." ROBERT WEINBERG

some researchers are shifting their focus to another, equally important, problem: studying the interactions between cancer cells and the normal cell types that have been recruited into the tumor mass. "Many labs, my own included, are now trying to understand how breast cancers develop by learning how different cells in a tumor speak to each other," explains Weinberg.

Researchers have established that normal tissues maintain their state of homeostasis through multiple signaling systems, among them soluble growth inhibitors in cells and insoluble growth inhibitors in the extracellular matrix and on the surfaces of neighboring cells. These regulators keep normal cells in a quiescent or differentiated state. Systems that inhibit cell division involve the retinoblastoma (pRB) and other related proteins. Potential cancer cells apparently break out of these systems. Disruption of the pRB pathway leads to production of E2F proteins. That allows continuous cell division to occur as the cells become resistant to the growth inhibiting factors that operate along this pathway.

Once started, cancer cells keep proliferating via two mechanisms. Grown *in vitro*, normal cells need a ready supply of exogenous growth factors to sustain continued cell division. In contrast, growing tumor cells depend far less on such exogenous factors. They may produce their own growth factors or stimulate cells nearby to produce the needed factors for their continued division. One example of this occurs in sarcomas. By producing their own tumor growth factor, they eliminate the need for other cells to help out in the growth of the malignant cells.

Equally important is the ability of cancer cells to persuade normal cells to help them grow. "When one looks at a tumor one sees several types of cells coexisting and collaborating to make the cancer grow," Weinberg points out. "They include normal cells that have been co-opted and are used by the tumor cells to aid and abet their proliferation. These heterotypic interactions are as important as interactions between cancer cells. I work with a faith that they will be able to give us a set of the common rules that regulate the process."

DEFYING DEATH

Cancer cells keep growing because they can avoid apoptosis, the process of programmed cell death that permits normal cells to discard extra cells or those that have become defective. Understood only recently, the machinery that can trigger apoptosis is operative in most if not all cells, just waiting to be activated by some physiological event. Once activated the process removes unnecessary, damaged, or aged cells. When a cell undergoes apoptosis its morphology changes. The cell shrinks and becomes more dense. At the same time several significant changes take place at the molecular level, including fragmentation of DNA, activation of a group of enzymes called caspases, and a decrease in the transmembrane potential of mitochondria.

Cancer cells can acquire resistance to apoptosis in several ways. One common mechanism involves mutation of the p53 tumor suppressor gene. That mutation inactivates the p53 tumor suppressor protein, a key component of the DNA damage detection systems that can induce apoptosis in normal cells. Inactivation of similar proteins can also reduce the ability of aberrant cells to undergo apoptosis.

Life scientists know that cells in culture will go through cycles of growth and division only a finite number of times before they stop dividing and become senescent. The expression in cells of introduced proteins that inactivate the pRB or p53 tumor suppressor proteins enables these cells to continue dividing until they reach a stage at which they experience chromosome breakdown and massive cell death. Very few cells escape death at this stage, termed crisis. The few that do—fewer than one in a million—have solved the problem of maintaining chromosomal structure and have acquired the ability to grow indefinitely. Such cells are considered immortalized. Virtually all types of malignant cells appear to be immortalized.

Cell mortality is linked to telomeres, the ends of chromosomes that consist of several thousand short, repeating DNA sequences. Each time a cell replicates, every one of its chromosomes loses several of these terminal DNA sequences. Scientists believe that this shortening results from an inability of DNA polymerases to replicate the 3′ ends of chromosomal DNA completely during the synthesis phase of cell division. Because normal cells cannot repair the ends, they eventually enter the crisis state. Most types of malignant cells, however, possess an internal system that uses the telomerase enzyme to maintain and repair their telomeres. That enables them to grow and divide indefinitely.

GROWTH FACTORS

Another factor critical to sustaining the growth and homeostasis of tissue is angiogenesis, the formation of new blood vessels in growing tissue. Tumor cells appear to stimulate angiogenesis by affecting the balance of inducers and inhibitors of this process. The use of specialized mouse models will be key in assigning specific functions to each of these regulators and to understanding the molecular basis of their activity. Several providers, including Eurogentec, Lexicon Genetics, and Taconic, have developed mouse model systems to explore the effects of knocking out specific genes and to determine their functions in complex living systems. These companies allow researchers and pharmaceutical companies access to very sophisticated and specialized technology without the large setup costs and learning curves required to develop such services in-house.

The ability to invade other tissues and metastasize allows cancer cells to escape from the primary tumor mass and find new ground to inhabit and regions to colonize in which the supply of nutrients and the amount of space available for growth are not so limited. This process of spreading throughout the body of the host involves several classes of proteins that enable cells to anchor to their surroundings. They include cell adhesion molecules (CAMs) and molecules that link cells to ECM substrates known as integrins. Changes in the expression of CAMs seem to play a key role in invasion and metastasis. Invasive or metastatic cells are also marked by changes in integrin expression. And

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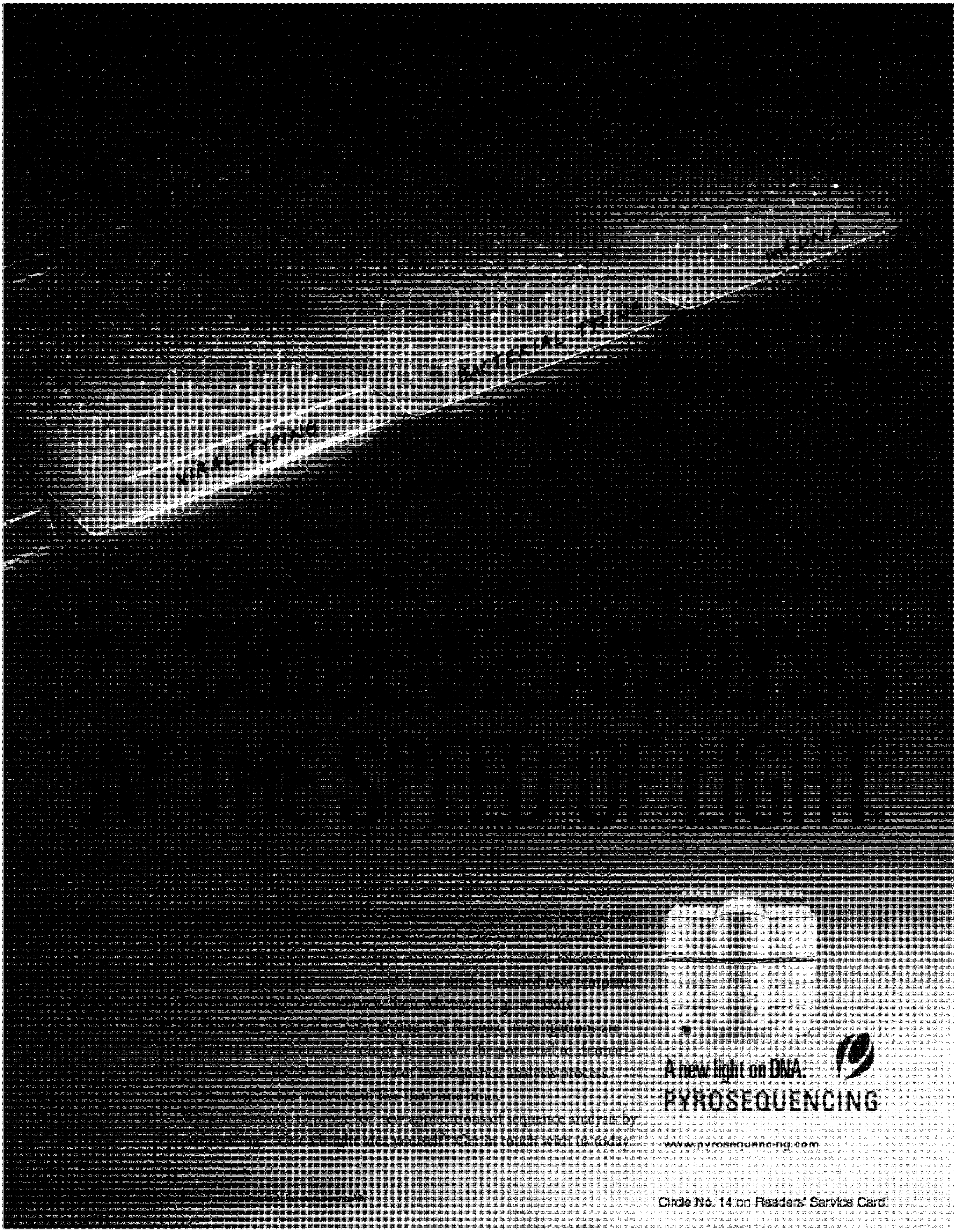

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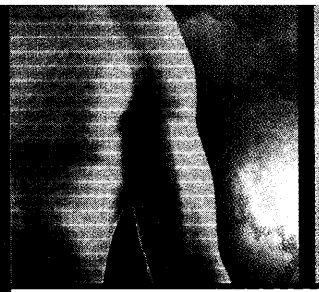

"We have been aggressively profiling tumors for several years to characterize and analyze markers for pharmas." RANDY SCOTT

extracellular proteases sometimes help to stimulate the spread of cancer cells.

One other key attribute of cancer cells is the instability of their DNA. Several systems in normal cells watch for aberrations. If they detect any, the systems keep them in check by steering the cell into apoptosis. As a result, DNA mutations are very rare. The fact that cancers appear in humans at a significant frequency suggests that our DNA is relatively susceptible to mutations during the course of our lifetimes. Research teams have implicated malfunctions of the safeguarding systems for DNA in this susceptibility. For example, the p53 tumor suppressor protein responds to DNA damage by halting the cell cycle to allow for either DNA repair or, if the damage is serious, apoptosis. The blockage of that protein that occurs in cancer cells prevents the repair and permits mutations to spread.

MOLECULAR TOOLS

Several areas of research have helped life scientists to reach their current level of understanding of carcinogenesis and to use the understanding to develop drugs to combat the disease. They include the elucidation of signal transduction pathways, genomics, combinatorial chemistry, high throughput screening, and bioinformatics. "It's a combination of molecular biology, genetics, and genomics," says NCI's Klausner. "There are some wonderful and interesting technological developments that signify a switch in our ability to study biologic processes."

For cells, cancer represents the antithesis of controlled homeostasis. A single mutation in the genome of an organism can profoundly affect cell regulation and thereby upset the delicate balance among many biochemical pathways. So when they select drug targets for cancer therapy, pharmaceutical researchers focus on those pathways most often deregulated in cancers. These include the receptor tyrosine kinase/ras/ raf/MAP kinase pathway that participates in the proliferation of cells, the cyclin-dependent kinase/RB/E2F pathway that is involved in the cell cycle, and the p53 stress response pathway.

Calbiochem, ICN Biomedicals, and Sigma-Aldrich, among other companies, provide researchers with broad lines of the basic compounds and reagents they need to study these pathways and the cellular functions of signal transduction (ST). These vendors have made it possible for life scientists to access a more standardized supply of biochemical tools to study cellular function while benefiting from the convenience of buying many products from a single supplier.

Other companies have entered the ST market niche, offering reagents and kits specifically designed for use in this discipline. These vendors, who include Alexis Corporation, Biomol, and BD Biosciences-PharmMingen, can offer expertise and technical support for scientists new to ST research. Still other companies, among them Chemicon International, Oncogene Research, SantaCruz, and Upstate Biotechnology, have focused on specific lines of products for ST research, such as antibodies.

Recent advances in the field of genomics have helped life scientists to develop a detailed understanding of how genes and the proteins they produce can change a normal cell and cause it to progress to a cancerous state. These key functional proteins are the basis for rational drug discovery using small molecules that can attack the affected biochemical pathways responsible for cancer.

Structural and functional genomics have led to the identification of many new cancer targets that researchers can use in their efforts to develop novel drugs that will act as effective and potent therapeutic agents. The use of combinatorial and computational chemistry coupled with high throughput screening systems has allowed chemists to create and screen thousands of samples in no more time than they would have taken just a few years ago to screen a few dozen samples for anti-cancer activity. "We have been aggressively profiling tumors for several years to characterize and analyze markers for pharmas," says Incyte's Scott. "We're now striving to go deeper into genomics for early stage drug development applications."

CHEMISTRY, MOLECULAR BIOLOGY, AND INFORMATICS

As chemists and molecular biologists discover more targets and create more potential drugs, or leads, to affect these targets, they encounter the tyranny of volume. The number of samples they need to process overwhelms traditional approaches. So assay miniaturization and high-volume screening become critical. "Alongside the breakthrough in genomics have come breakthroughs in high throughput sequencing, combinatorial chemistry, and structural biology," comments Paul Workman of the Centre for Cancer Therapies.

High throughput screening (HTS) systems consist of automated instruments designed to handle, prepare, and process many samples. The instruments help to screen cell lines for the presence of specific genes, proteins, or other markers, all of them essential in identifying potential drugs for cancer treatment. The ability of HTS and UHTS (ultra-high throughput systems) to screen thousands of compounds each day has two positive effects on the drug discovery process. It improves the efficiency and productivity of laboratories, thereby keeping sample processing from becoming a serious bottleneck in the process of drug discovery. And because the systems can be run on a micro scale they conserve precious samples and reduce the cost of screening protocols. Key manufacturers of HTS systems include Beckman Coulter, Eppendorf, LJL Biosystems, and TECAN.

Naturally occurring substances extracted from plants have long acted as the major source of drugs for treating cancer. Now another source of anti-cancer drugs is emerging: small molecules synthesized by organic chemists. Combinatorial chemistry has enabled researchers to design and produce families of related compounds that have

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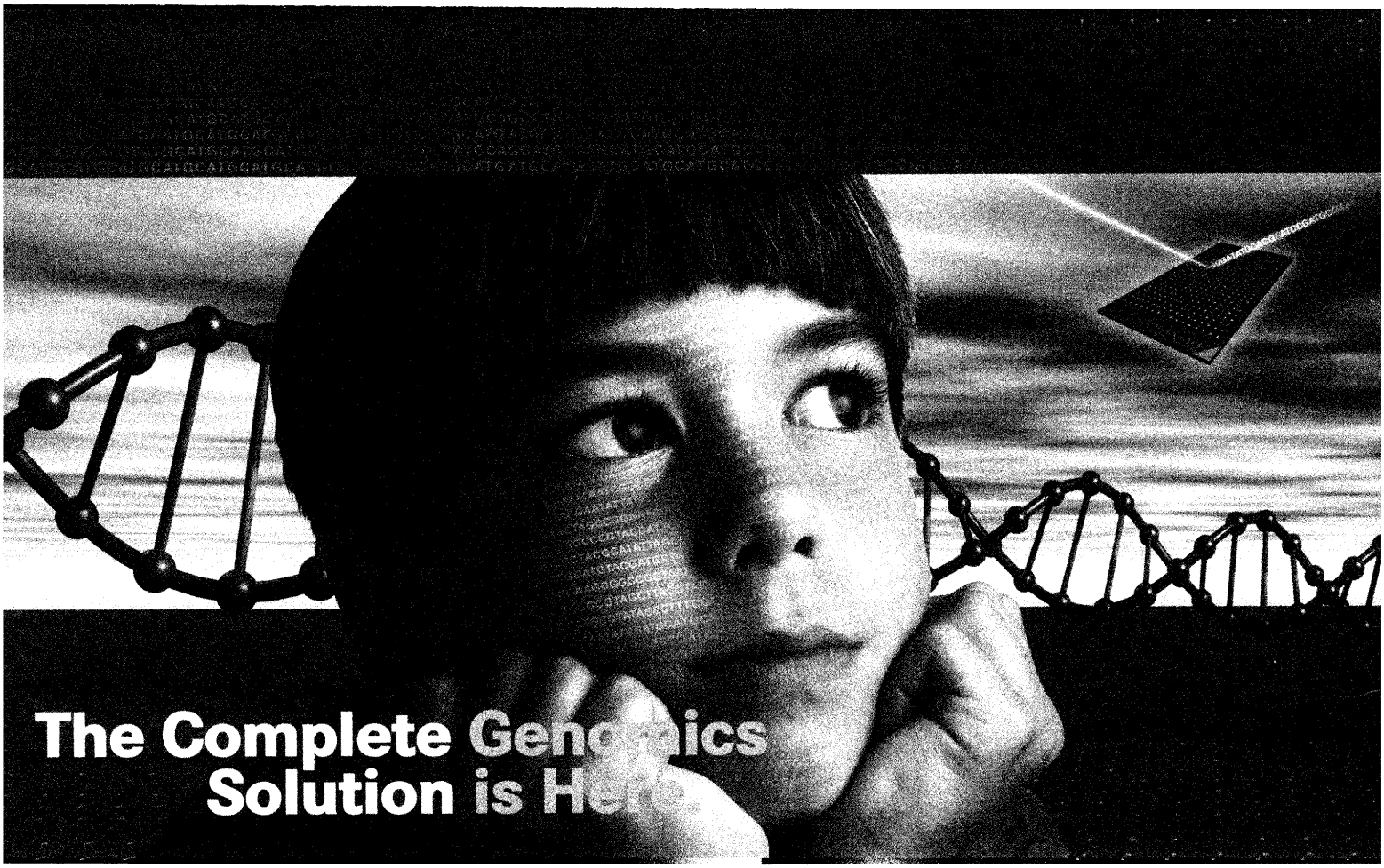

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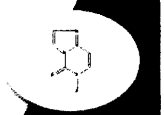

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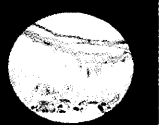

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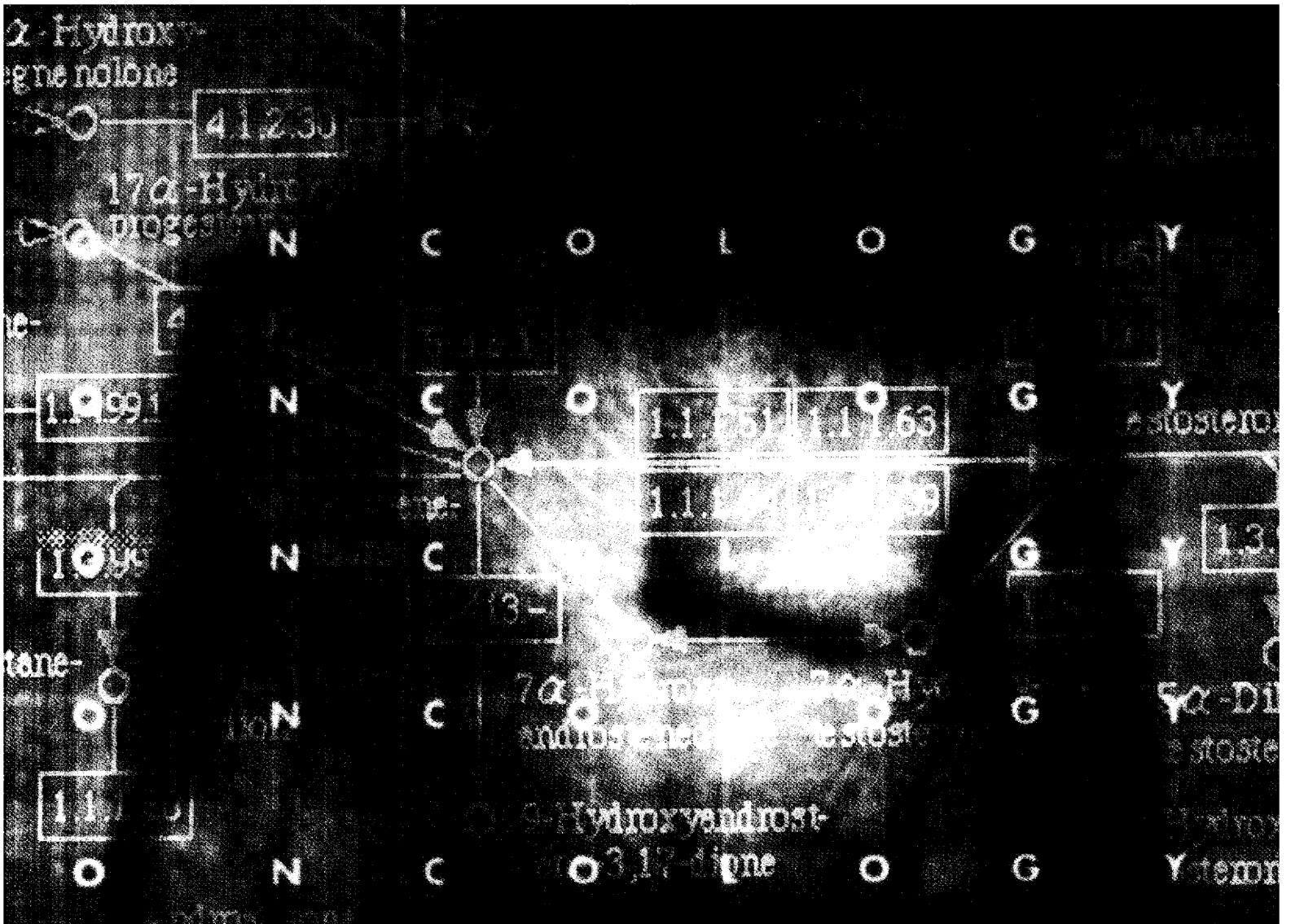

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"I predict that in the future the type of tumor won't matter. What will matter will be molecular characteristics." KAROL SIKORA

good probabilities of interacting with targets in a cell's biochemical pathway.

Molecular biologists can take the synthetic process further by altering a cell's genes to enable that cell to produce a new protein that it couldn't create before it was genetically engineered. These new genes ultimately produce new proteins, which affect the biochemical activities of a cell. Gene Therapy Systems, Inc., based in San Diego, designs, develops, and commercializes gene therapy products and other molecular biology reagents for life scientists working on gene therapy. The company has the goal of accelerating and enhancing new discoveries in gene delivery systems for gene therapy research as well as aiding the use of vaccines for cancer. The tools include transfection products and plasmid DNAs.

Scientists at Gene Therapy Systems have developed a high throughput technology to generate tens, hundreds, or even thousands of individual genes that can be used directly in functional *in vitro* and *in vivo* assays. Currently the established way to produce a transcriptionally active gene is to clone it into a plasmid expression vector, expand it in bacteria, and extract and purify it by column chromatography. This process, which usually takes several days to complete for each gene, is too slow and labor intensive to accomplish when hundreds or thousands of genes are being considered. Genes can be amplified in a very high throughput fashion using PCR, but typical PCR products are not transcriptionally active until they get cloned into an expression vector.

"People working in the field might be interested in making hundreds or thousands of functional genes at a time," says chief scientific officer Philip Felgner. "Our TAP Express system allows investigators to use PCR to accomplish this." The PCR products can be used directly in *in vitro* transfection assays or injected directly into animals. A project that would have consumed months or years with the old technology can now be accomplished easily in a single day." For applications to vaccines, Felgner continues, "investigators interested in identifying protective, immunogenic antigens from complex microorganisms or tumor cells can now use TAP Express to generate PCR fragments that can be injected directly into animals." The protein produced as a result could protect the animal or patient against a specific microbe or cancer.

Handling the vast amounts of scientific data that emerge from high throughput systems and combinatorial chemistry experiments threatens to create its own roadblock in drug discovery. Here bioinformatics makes its appearance. Software specialists and the occasional life scientist have developed powerful computer programs to help researchers organize and analyze structural and functional data. Scientific teams mine the data to identify similarities and differences in the sequences of genes and proteins within individual species and between different species.

Databases of DNA and protein sequences and of other functional data often exist on different platforms. That complicates the researcher's job of comparing data. In recent months DNASTAR, Genomic Solutions, Oxford Molecular Group, and other scientific software companies have improved programs for analyzing and comparing sequences that have made data analysis more routine than in the past.

GOING WITH THE FLOW

The recent advances in cancer research at the molecular level promise to have an early impact on diagnosing the disease. "Diagnostics will be vital," asserts Pharmacia's Karol Sikora. "I predict that in the future the type of tumor won't matter. What will matter will be molecular characteristics. So we'll have very good molecular diagnostics."

NCI's Richard Klausner foresees a bright future for the field. "For some time the diagnosis of cancer has been slowly evolving to include molecular diagnostics," he says. "Our expectation is that this will undergo a rapid expansion." NCI plans to fund consortia that will search for new classifications of cancers based on their molecular characteristics. Methods will include high throughput screening, arrays and gene chips, and proteomics. "These not only classify tumors but have prognostic significance," says Klausner.

Flow cytometry provides a good example of the promise of molecular diagnostics. It has had particular application in studying cell surface markers in general and, recently, apoptosis in particular. "Cell surface markers allow physicians to stratify patients to determine treatments," says Steve Koester, manager for advanced technology at Beckman Coulter, Inc. "We're right in the middle of a revolution in cytometry. We have a whole plethora of things coming down the pike to break open diagnostics. They will change the way that diagnostic medicine is applied to cancer in the future."

Flow cytometry has become a valuable tool in apoptosis research relevant to cancer because it offers rapid and accurate measurements of cell constituents and cell functions. This technique has the ability to take measurements in many cells in a very short time and also to describe a population of cells based on one or more particular parameters of interest. Life scientists often use flow cytometry to identify and quantify such proteins as Bcl-2/Bax members, detected using immunocytochemistry.

"Our Epics XL benchtop analyzer can tell if there is an abnormal DNA content in the nucleus of cells; many solid tumors have abnormally high or low amounts of DNA in their cells," says Grant Howes, marketing manager for flow cytometry at Beckman Coulter, one of the companies specializing in production of flow cytometers. Some of these instruments require dedicated staff to operate them, but offer the advantage that one can measure several parameters at a time using dyes that are excited at different wavelengths.

Antibodies tagged with labels such as fluorescein and other molecules that allow scientists to visualize them find broad use to identify and locate specific proteins in or on a cell. Antibody-based probes are ideal for identifying specific cell populations based on differences in their cell surface proteins or markers. They can also be used for histochemical applications in which a cell is

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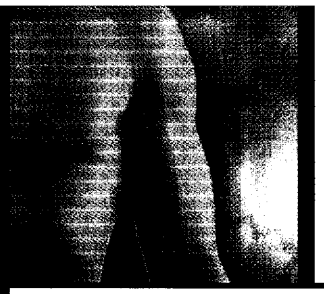

"...patients need therapies that will allow them to maintain a good quality of life and prevent relapse of the cancer." PAUL MADDON

fixed in paraffin and sections of it stained with antibody for a specific molecule. These tagged cells can be identified using microscopy, fluorescent readers, or flow cytometers. Molecular Probes provides many of the fluorescent labels used with antibodies.

Several assays for diagnosing cancer have already reached the market, many of them based on antibodies that detect the presence of tumor antigens. The reliability of these antibody-based assays has improved over time, although issues remain with nonspecific binding and cross-reactivity in these systems. One company very active in cancer diagnostics, Zymed Laboratories, Inc., produces its own antibodies for cancer diagnostics and supplies them to several market leaders in the field as well.

THE THERAPEUTIC PROMISE

The ultimate value of understanding cancer at the molecular level will arise in the development of treatments. "The most promising and exciting approaches to cancer represent the ability to direct therapy toward defined targets," explains Klausner. "We're seeing immunologic approaches coming into their own as molecularly targeted reagents such as human monoclonal antibodies are approved."

Monoclonal antibodies designed to attack cancer at the molecular level can complement traditional cancer treatments such as chemotherapy. "We believe that adding antibodies to standard therapy can dramatically influence the outcome of treatment," says Gwen Fyfe, senior director for medical affairs, oncology, at Genentech. "One weakens the cancers and the other gives the final blow, although it's unclear which does which." Genentech has led the way in this area of treatment with its co-development of Rituxan and its pioneering of Herceptin. Herceptin's success in treating metastatic breast cancer has been linked to overexpression of the HER-2 allele in patients with the disease.

Those drugs represent just a start for antibody therapy. At the research level, says Leonard Presta, a staff scientist in research at Genentech, "our major target is to refine the mechanisms of Rituxan and Herceptin. That research includes looking at signal pathways." Meanwhile Genentech and several other companies have developed new antibody therapies that are in various stages of patient testing. According to Presta, more than 400 are in clinical trials worldwide for all diseases, including cancer. "This has very quickly become a growth area," adds Fyfe. "It's likely that antibodies will become a standard treatment for metastatic cancer within 10 years."

Pharmaceutical companies have shown similar interest in cancer vaccines. "We're on the cusp of a new paradigm with cancer in which, once you're diagnosed with the disease, you'll get a vaccine just like the one you had as a child for polio or measles," says Progenics Pharmaceuticals' Paul Maddon.

The treatments are not vaccines in the traditional sense. Rather, they are therapeutic agents that may stimulate the immune system in such a way that it can more effectively fight off the disease already in the body. As such, they should be applied as soon as cancer is diagnosed. "The vast majority of cancer patients find themselves in this position," explains Maddon. "They have the initial diagnosis but the cancer has not yet spread. These patients need therapies that will allow them to maintain a good quality of life and prevent relapse of the cancer." Not only do vaccines that augment the immune system have the potential to provide enhanced therapeutic benefit. They also create fewer side effects for the patient. Progenics has several cancer vaccines undergoing clinical trials. Notably its GMK cancer vaccine has become the first to enter Phase III clinical trials.

Several researchers have started to develop cancer vaccines using Eppendorf's cell electrofusion technology. "The system is used to fuse tumor cells with dendritic cells, a kind of antigen presenting immune cells," explains Eppendorf's product manager Kurt Lucas. "It transfers both DNA and membranes. We use very short pulses – a microsecond rather than a millisecond. One of the advantages of using electrofusion is that the technique can work on very small numbers of cells compared with the less efficient, chemically induced cell fusion."

So far researchers have applied the technique mainly to patients with kidney cancers. "The cancers need to be slow-growing," explains Lucas. "And it's best if the patients have not had radiation treatment or chemotherapy, because they need relatively strong immune systems."

CUTTING OFF THE BLOOD SUPPLY

As tumors grow, they require more vascularization of their mass to provide nutrients and eliminate cellular waste. Tumors develop their circulatory systems through angiogenesis, which involves actively recruiting and incorporating blood vessels from nearby normal tissue. So in theory compounds specific to tumor cells that inhibit this process could shrink or eliminate tumors without damaging normal tissue.

"Angiogenesis is where the major effort in small molecules is," says AstraZeneca's Les Hughes. "The key is that you have to have the effect clearly on the tumor and not on the normal tissue." Hughes's company has over 15 products in preclinical and clinical development for a range of cancers that includes breast, colorectal, lung, and gastric tumors. Genentech is targeting angiogenesis via a monoclonal antibody directed at the VEGF gene itself. Genentech is studying its anti-VEGF antibody in breast, colorectal, and non-small cell lung cancer.

Gene therapy shows promise as a treatment for cancer, and progress is being made in both preclinical and clinical research. Thousands of patients have been given various gene therapy treatments, mostly directed against cancer, and several potential products are in late stage clinical trials. "We're still in the early stage," admits Felgner of Gene Therapy Systems. "Many technical enhancements need to be identified and implemented to improve *in vivo* gene delivery." Gene Therapy Systems has a technology that may contribute to this end. "Our PNA Dependent

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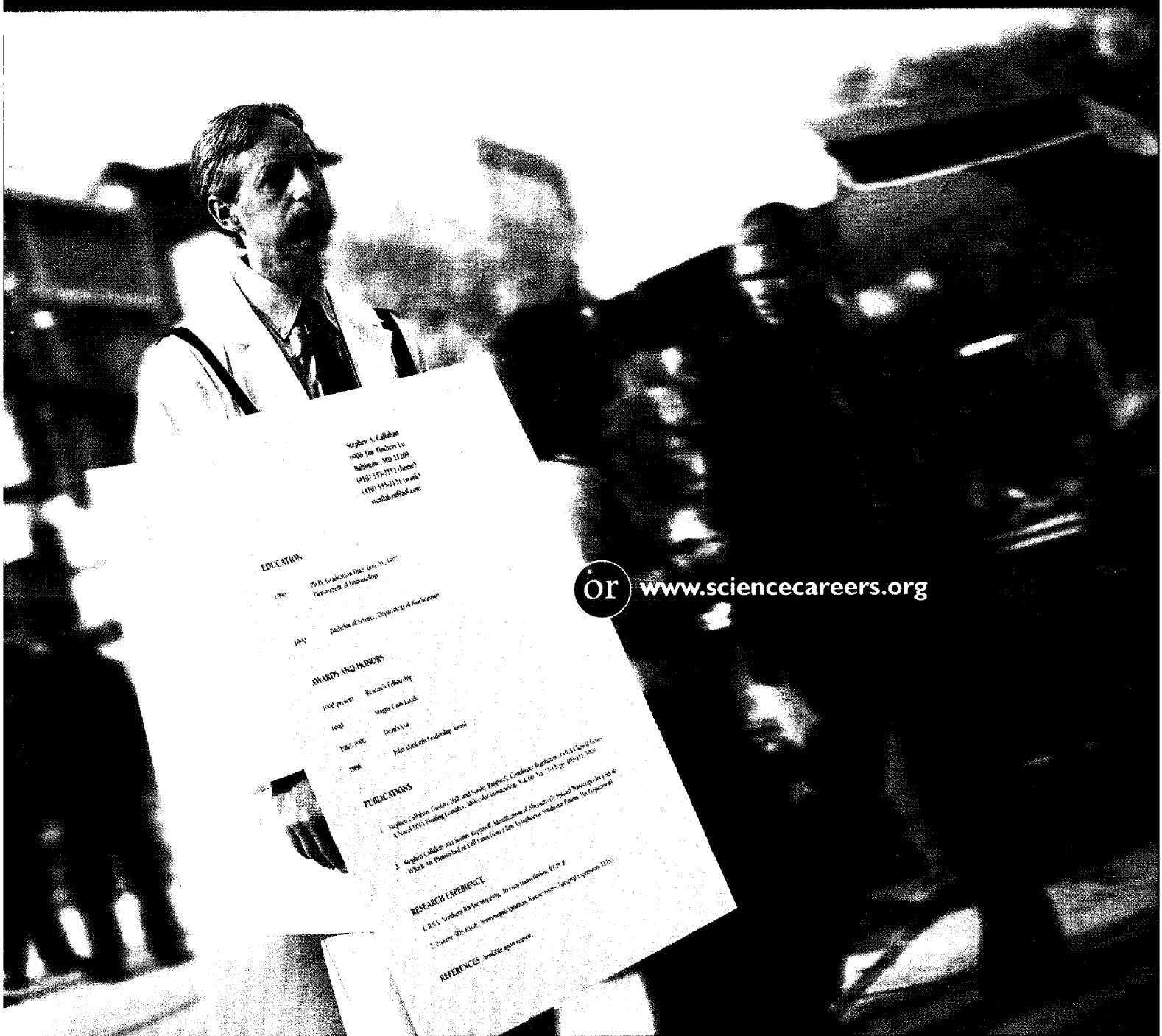
Gene Chemistry enables investigators to chemically modify genes in order to improve their function and *in vivo* bioavailability," says Felgner. The company is looking for licensing partners to accelerate the development of this technology.

As clinical trials of molecularly influenced cancer therapies prove successful, fresh problems emerge. "There's an awful lot of regulatory pressures beyond clinical protocols," says Shawn Smith, senior business development manager for the GIBCO Cell Culture division of Invitrogen Corporation. "Companies are paying a lot of attention to the manufacture of new diagnostics and therapeutics. As items migrate out of trials onto the market, there's a change from scientific to business thinking."

Concern in Europe over the relationship between bovine spongiform encephalitis – the so-called "mad cow disease" – and human Creutzfeld-Jacob disease has forced pharmaceutical companies to develop processing methods that avoid animal products. In helping biotechnology and pharmaceutical companies to set up manufacturing operations, says Smith, "we have to develop bioprocessing systems that are much more sophisticated." He adds a caution. "Only a small handful of the hundreds of cancer therapies in clinical research will successfully reach phase III trials, let alone get to the market," he says.

Nevertheless, as scientists improve their understanding of the molecular mechanisms of cellular function and malfunction, the treatment of cancer will take on a more scientific and logical approach. "We can foresee the therapeutic Holy Grail," says NCI's Richard Klausner. "That is the ability to identify the specific molecular machinery of cancer, to validate the importance of the altered machinery, and then to design a drug that will specifically affect that molecular machinery."

Peter Gwynne is a freelance science writer based on Cape Cod, Massachusetts, U.S.A. Gary Heebner is president of Cell Associates, a scientific marketing firm in Chesterfield, Missouri, U.S.A.



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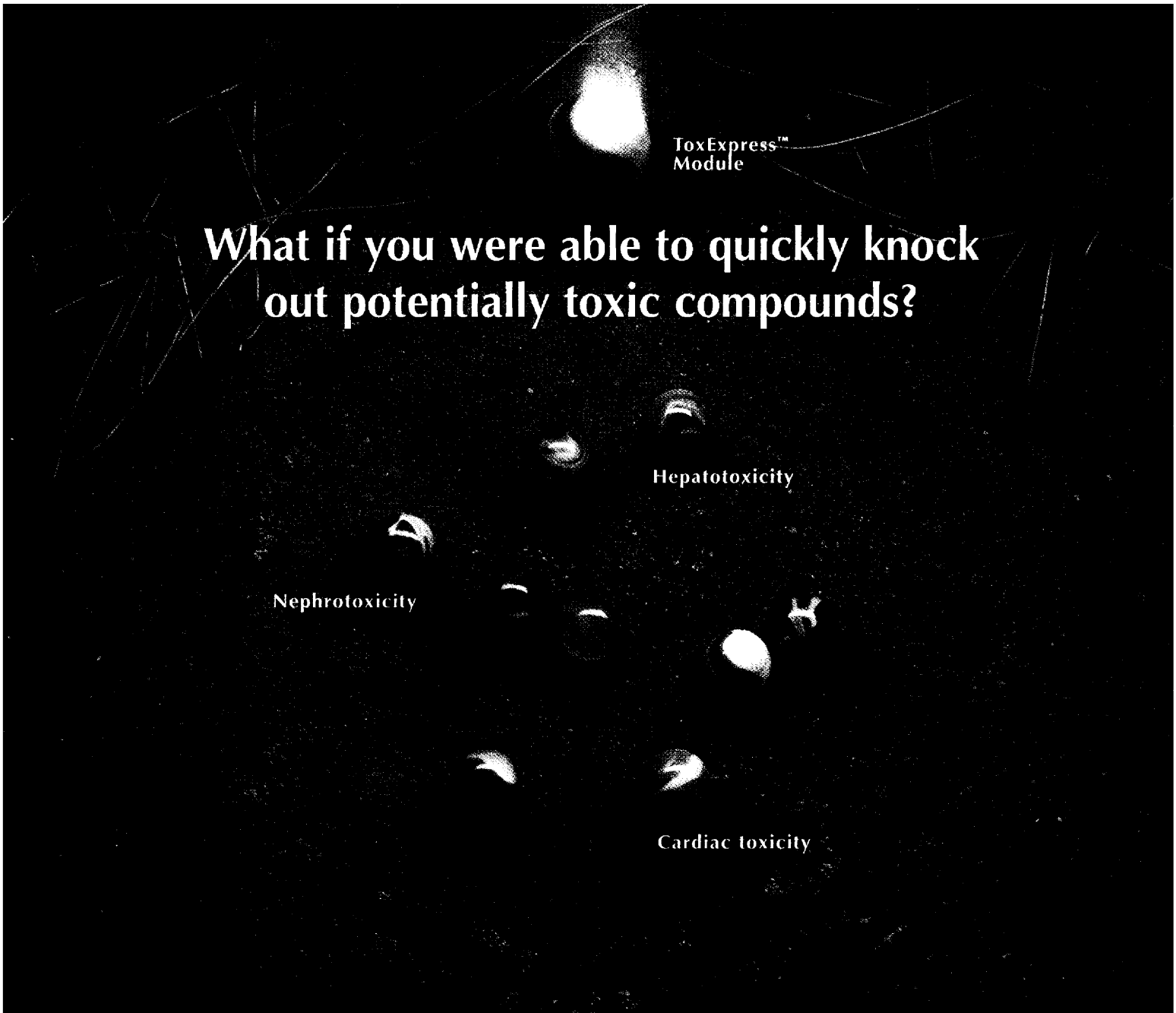

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FOCUS ON CAREERS

CANCER RESEARCH

As a result of progress in genomics, cancer research is experiencing a renaissance that promises better detection, better diagnosis, and better treatment. It also offers opportunities to scientists qualified at different levels in a wide variety of fields. BY PETER GWYNNE

JOINING THE RENAISSANCE

THE EMERGENCE of the disciplines of genomics and proteomics has had a major impact on cancer research. A growing emphasis on understanding the disease at the molecular level promises marked improvements in the detection, diagnosis, and eventually treatment of several types of cancer.

That new emphasis has brought entirely new groups of scientists into cancer research to join the clinical oncologists who have traditionally held sway. Molecular biologists, chemists, and experts in bioinformatics, gene expression, and protein expression have become essential to the struggle against cancer.

Overseers expect all their scientists to work in interdisciplinary groups and to have a broad understanding of the way in which lab work can lead to therapies. Here, representatives of an academic center, a private cancer institute, and three pharmaceutical companies discuss their needs and criteria for scientists in this new era of cancer research.

LOS ANGELES, California: "We're entering a sort of renaissance in cancer research," says Judith Gasson, director of the Jonsson Comprehensive Cancer Center at the University of California, Los Angeles. "With the sequencing of the human genome we're going to see an absolute explosion of research that will lead to better prevention, better detection, and better treatment."

The explosion will open up significant prospects for scientists with an interdisciplinary perspective. "The research will be done by groups of people because it's becoming much more complex," says Gasson. "The opportunities will arise for those people who can adapt."

Those individuals won't necessarily possess qualifications in traditional life science subjects. "We are building working groups that include people with Ph.D.s in education and computer science as well as biology and chemistry," says Gasson. "We need M.D.s We also need mathematicians and statisticians. One of the useful factors about being in an academic center is that we have them on campus. If they have some grounding in life science, then so much the better."

Life scientists with a feel for mathematics and computing have particular opportunities in the emerging molecular-based approach to cancer research. "The person who is going to be successful will be able to adjust to dealing with the

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

CONTINUED ➢

ADVANCING THE BATTLE AGAINST CANCER

AstraZeneca has delivered some of the most effective and widely used pharmaceuticals available, and we are committed to continuing that tradition of excellence into the 21st century. AstraZeneca's contribution in the battle against cancer has a worldwide reputation for excellence - especially within the laboratory-based discovery of new drugs. As part of our commitment to be number one in this field, we have significantly expanded our cancer discovery operations at our new state-of-the-art R&D Boston facility in Waltham, Massachusetts, and our expanded discovery operations at our facility in Alderly Park, UK.

Today, our aggressive drug discovery efforts are enhanced through our US-based Cancer Discovery Research, Infection Discovery Research, and our leading-edge Enabling Science and Technology group at AstraZeneca R&D Boston. This innovative new facility spans the full spectrum of drug discovery, from exploratory and medicinal chemistry to genomics, helping us to rapidly move from the gene to the clinic with high quality candidate drugs.

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o Ph.D. Team Leaders

You will lead and motivate a team of bioscientists dedicated to the discovery of new cancer fighting drugs. You should have two to five years of post-doctoral experience with proven productivity in the areas such as cell signaling, cell cycle, apoptosis, or emerging anti-cancer areas. Excellent interpersonal, management, and communications skills, and a commitment to excel in a team-oriented, project-driven environment are essential.

o Research Bioscientists

You will have a BS/MS with proven investigative laboratory skills and the desire to join a dynamic team of cancer biologists in actively identifying new anti-cancer molecular targets and cancer fighting agents. We are looking for professionals in the areas of cell biology, biochemistry, molecular biology, and protein expression and purification. Experience in automated assay development (in vitro, in vivo, whole cell) is desirable. Excellent interpersonal and communication skills are essential.

Interested candidates may learn more about our efforts against cancer on our website, or please forward your resume, **referencing Science AACR,** to: **AstraZeneca R&D Boston, 35 Gatehouse Drive, Waltham, MA 02451; E-mail: hr@astrazeneca.com; Fax: 781.839.4500.** Diversity is the essence of our science. An Equal Opportunity Employer.

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PhD Scientist - CNS - Cognitive Behavior

Responsibilities include the design, execution and publication of *in vivo* behavioral models in mutant mice. A PhD level trained scientist with a degree in Pharmacology, Neuroscience, Psychology or related disciplines is necessary. 2-4 years of postdoctoral experience and a broad familiarity with approaches to studying cognitive behavior in laboratory animals, preferably mice, are required.
Job Code: PAD/SCJ/SRI/754HS

PhD Scientist - Mycology

Within the Infectious Disease and Tumor Biology team, you will be responsible for the identification and classification of filamentous fungi using classical and molecular taxonomic methods; applying an understanding of fungal ecology to the isolation of filamentous fungi from natural habitats; and production and manipulation of fungal secondary metabolites. Additionally, you will oversee the fungal culture collection. PhD in Mycology and 2-3 years of postdoctoral research are required. Research should include the study of molecular mechanisms of fungal differentiation, physiology, taxonomy and/or secondary metabolism.
Job Code: PAD/SCJ/SRI/650HS

PhD/MD Scientist - Immunology

We are seeking a scientist with extensive experience in disease models to join our Mouse Genetics Group. Your main responsibilities include the phenotypic analysis of several novel mouse mutants and setting up a number of inflammatory and autoimmune models. A PhD or MD/PhD in Immunology and 3-5 years of postdoctoral research are required. Experience should concentrate on disease models in genetically modified mice. Job Code: PAD/SCJ/SRI/880HS

MS Research Associate - Allergy

Supporting department efforts for ongoing projects and new allergy targets and strategic interests, you will be responsible for performing cell culture, cell based functional assays, receptor binding assays and HPLC methodology. MS degree in Molecular Biology, Cell Biology or Biochemistry and 3-5 years with molecular biology techniques are required. Experience with cell culture and receptor binding pharmacology is necessary. Job Code: PAD/SCJ/SRI/811HS

BS/MS Research Associate Allergy Research

Your primary responsibility will be to perform, analyze and compile experimental data (including the evaluation of cell differentials and parameters of airway function and/or remodeling) from *in vivo* rodent models of pulmonary inflammation. Candidates should offer experience in small animal surgery, cell biology and computer use. Supplemental knowledge of tissue culture and histological techniques would be a plus. A BS in Biology, Physiology or Pharmacology and 1-4 years of experience, or an MS with 0-1 years of experience are required.
Job Code: PAD/SCJ/SRI/886HS

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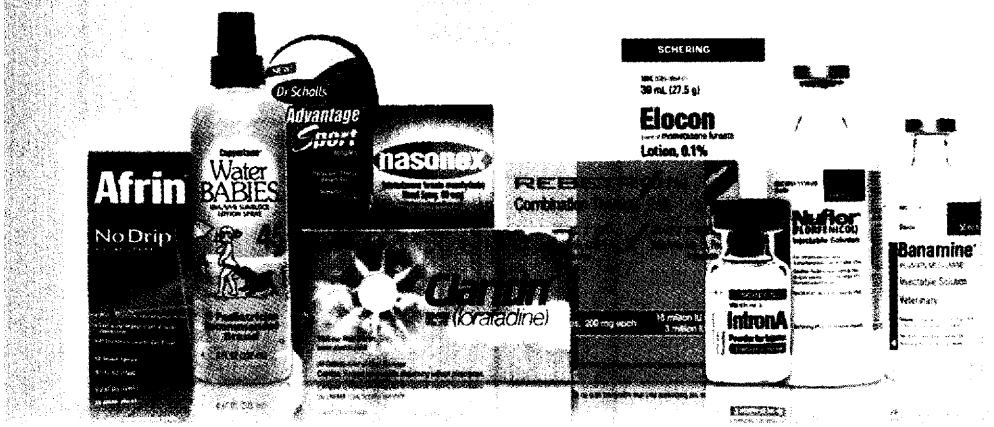

BS/MS Research Associate
Chemotherapy & Molecular Genetics

Will be responsible for *in vivo* testing of anti-infective drugs using various dosing methods and supporting active leads from bacterial and fungal genomics program through *in vitro* and *in vivo* studies. BS/MS degree in Microbiology or related field and 1-5 years of laboratory experience are required. Skills should include expertise with various animal-dosing techniques. Background/experience in molecular biology, immunology, and statistics is a plus. Computer skills and a strong desire to learn are desirable. Job Code: PAD/SCJ/SRI/649HS

BS/MS Research Associate
Natural Products - Fermentation

Will work with a team of scientists to evaluate microbial strains of fungi and soil bacteria for the production of secondary metabolites and to optimize media and inoculation processes for large-scale fermentation. Responsibilities include maintenance, propagation and scale-up of microorganisms in various culture systems; performing strain natural selection or classical mutation approaches to improve fermentation productivity; and strain evaluation and optimization of fermentation media processes in shake flasks and 10-liter fermenters. Additional duties include data analysis, report writing, oral presentation and interaction with other groups. BS/MS in Microbiology or a related discipline and 2-5 years of experience are required. Excellence in aseptic techniques is necessary. Experience in flask fermentation and HPLC are desirable. Job Code: PAD/SCJ/SRI/694HS

BS/MS Research Associate - CNS

As an *in vivo* specialist, you will join a research team involved in the functional validation of candidate CNS disease genes and the implementation of relevant animal models of human disease for drug discovery programs. Responsibilities include the design, execution and data analysis of *in vivo* behavioral models in mutant mice. BS/MS in Pharmacology, Neuroscience, Psychology or related disciplines is required. 1-2 years experience with behavioral methods and a broad familiarity with approaches to studying behavior in small laboratory rodents, are necessary.
Job Code: PAD/SCJ/SRI/755HS

BS/MS Research Associate
Immunology/Histology

Working in the Mouse Genetics Group, you will be responsible for paraffin and frozen sectioning, necropsy, immunohistochemistry and *in situ* hybridization. BS/MS degree and at least 3 years of experience in histology are required. Experience with imaging analysis systems is desirable. HT/HTL certification is preferred. Job Code: PAD/SCJ/SRI/808HS

BS/MS Research Associate - Immunology

Your primary responsibility is the daily maintenance of a KO/transgenic colony in the Mouse Genetics Group. We are willing to train for this position. BS/MS degree in General Biology or Life Sciences and 1-4 years of experience with animal handling/breeding are required. Computer skills in maintaining databases as well as organizational skills are a must. Any surgical experience is a plus. Experience with embryo collection or in molecular biology is desired. Job Code: PAD/SCJ/SRI/827HS

BS/MS Research Associate
Cardiovascular Pharmacology

Will assist in the execution and data analysis of *in vivo* cardiovascular models required for study of thrombosis and heart failure. BS/MS degree in General Biology or Life Sciences and 2-4 years experience in *in vivo*, surgical skills, and performing cardiovascular assessments are necessary.
Job Code: PAD/SCJ/SRI/826HS

BS/MS Research Associate
[Part-time/Job Share] - Cancer Genomics

Will utilize cutting-edge technology to identify and validate novel targets for cancer drug discovery and use large-scale DNA arrays, proprietary genomic databases, and Real-Time PCR. BS/MS degree and strong molecular biological skills are required. Desirable technical experience includes RNA/DNA extractions, cloning/subcloning, cell culture, Western analysis, and routine computational biological procedures.
Job Code: PAD/SCJ/SRI/699HS

BS/MS Research Associate - "FLIPR"
Cell-Based Screening

Will join busy robotics lab team concentrating in High-Throughput Screening and assume the role of a "specialist" performing cell-based drug screening, setting up new paradigms, and interpreting results from fluorometric assays. BS/MS in Biochemistry or Biology or related field and 3-5 years of experience with cell-based drug screening including extensive use of the Molecular Devices FLIPR instrument are required. You should have an understanding of gene expression, reporter gene-based assays, cell culture and sterile techniques. Familiarity with High-Throughput Screening for new drug discovery and related processes is desired, along with the ability to multi-task. Job Code: PAD/SCJ/SRI/946HS

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"Science is a lot like art in that it takes quite a bit more creativity than people realize."

JUDITH GASSON

CANCER RESEARCH

Judith Gasson

amount of information that will be generated," Gasson explains. "We and everyone else are looking for people with a biology or chemistry background who can get their arms around bioinformatics."

Gasson expects candidates for employment, whatever their specialty, to have spent three or four years in postdoctoral work — preferably in a field different from that in which they obtained their Ph.D.s. "The larger your skill set, the more it will help you in the long run," she says.

As to extrascientific skills, "We like to imagine that the person will be a good colleague," Gasson continues. "Science is a lot like art in that it takes quite a bit more creativity than people realize. You want people who have done a significant body of work but you also need that spark of creativity. And we like to see people who are enthusiastic." For those individuals, the Jonsson Center offers a fulfilling prospect. "It's a terribly exciting time," Gasson summarizes. "Cancer research is a wonderful career as you can observe the advances and their effects on patients in real time."

Robert Kramer

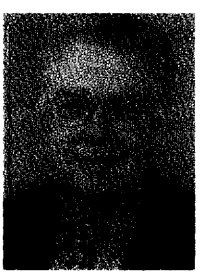
PRINCETON, New Jersey: In the postgenomic era, suggests Robert Kramer, vice president of oncology drug discovery at Bristol-Myers Squibb, the most critical set of abilities for cancer research involves target validation. "That skill set," he explains, "involves assessing the utility of newly discovered genes and the role they play in the cause and progression of cancer. It encompasses a range of expertise from genetics to bioinformatics to molecular and cell biology."

Cancer research in any pharmaceutical company ranges across a continuum from fundamental studies to clinical trials. Scientists with qualifications up to and including Ph.D.s and M.D.s oversee much of the research. However, says Kramer, "We can't do the work without our Bachelor's-level scientists; they are the backbone of what we do. That's one of the exciting things about a drug company: Your degree does not create barriers. Many of our best drug hunters don't have a Ph.D. They have learned on the job and have honed their instincts over the years."

What type of scientific instinct does Kramer seek? "We need people who like results, working in teams, a great deal of career flexibility, and opportunities to work on multiple projects throughout a career," he says. "We want to see a very solid skill base. You can't compromise on that. You need to be good in the areas you find exciting. But you must also have a broad perspective that permits you to articulate how what you do fits into the overall picture. We're always looking for people not worried about being trapped in the thing they do. We look for individuals who can tell us before we tell them that it's time to change what they're doing. In any project or experiment, good scientists know when the return on their time is not as high as it should be."

Beyond that, Kramer adds, "Nonscientific qualifications are absolutely critical. The difference between a drug or biotechnology company and an academic department is the need to work in teams. In industry the most successful people are those who can manage beyond their direct reports. Those with good persuasive skills who know how to take into account people's sensitivities thrive in this kind of organization."

How should life scientists prepare themselves for careers in industrial cancer research? "Recognize the investment that biotechnology and pharmaceutical companies are making in terms of research dollars for cancer," advises Kramer. "It certainly matches that of the National Institutes of Health. No places are more focused at driving ideas into the clinic in this type of environment."



David Hohn

BUFFALO, New York: Designated by the National Cancer Institute as a Comprehensive Cancer Center that must undergo peer review and meet rigorous national standards, the Roswell Park Cancer Institute makes fundamental contributions to reducing the impact of cancer. It does so in large part through its program of research.

President and CEO David Hohn identifies five segments in which the institute has particular interest. "We're looking at the whole connection between functional genomics and cell biology and how we can better design drug targets," he explains. "We also feel that the interplay of immune mechanisms with cancer will be a big area for some time to come." In animal modeling, "We have as a high priority developing genetically modified animals that mimic human disease," he says. "We want to understand new ways to detect and monitor disease via new markers and to understand how markers can predict cancer response. And we're looking for research at the prevention interfaces, such as chemoprevention and genetic epidemiology."

Hohn adds two less-obvious targets for research. "We view it as particularly challenging to go backward from the disease to the science. For that we need molecular oncologists — M.D.-Ph.D.s who can start to drive scientific observations from clinical observations," he says. "It's also really important that research centers in cancer have unique segments of research — novel areas of science that other scientists don't consider. For us that includes biophysical

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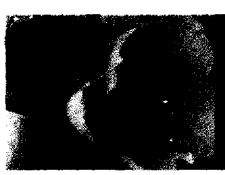

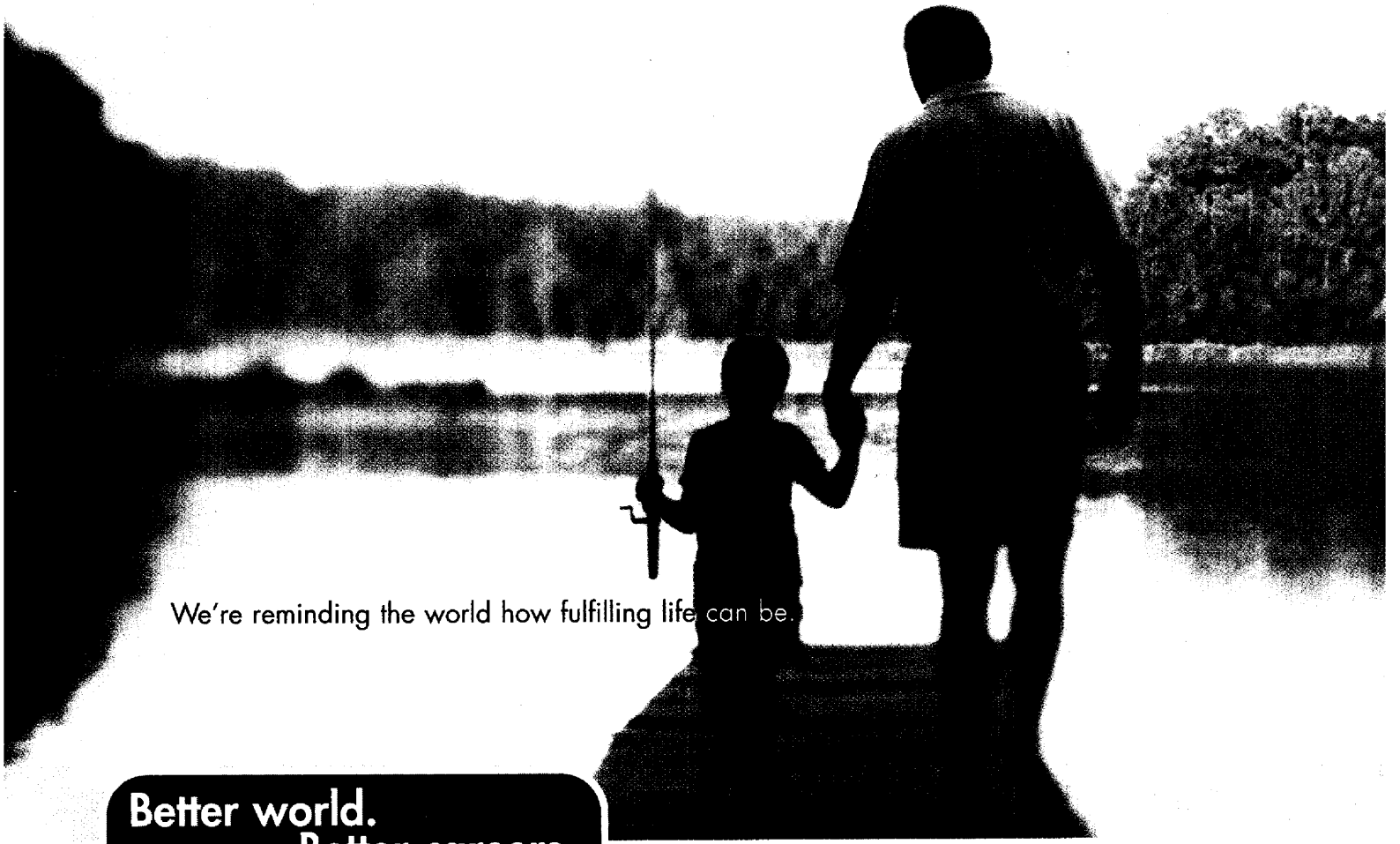

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"One of the areas of interest is to find new markers and new molecules that can be used to target cancer drugs."

MATTHEW MOYLE

cancer research

injury mechanisms and therapies. We pioneered photodynamic therapy at Roswell."

To carry out its entire range of research activities the institute seeks broadly trained, flexible scientists. "We're looking for plenipotent investigators who can evolve very quickly in science," says Hohn. "One of the most interesting categories is the individual who has more than one set of qualifications, such as an M.D. who has worked in oncology and then in drug development."

A feel for the commercial aspects of research also helps. "We have the ability to go all the way from chemical synthesis to a clinical trial," says Hohn. "Sometimes drugs come in from industry and get developed here. We want people who understand market opportunities for novel drugs and agents and scientists who can sort out commercializable ideas."

What does Roswell Park require of its bench scientists? "I'm really interested in the most creative people with the best ideas," Hohn declares. "We're looking for scientists who are going to fit the organization, but beyond that we really look for raw ability."

Derald Lo

SEATTLE, Washington: Pharmaceutical company Cell Therapeutics, Inc. (CTI) aims to develop a new generation of cancer therapies through a combination of unique technology and a product-driven focus on patients. To that end the company seeks scientists with skills in chemistry and cell biology, among other disciplines.

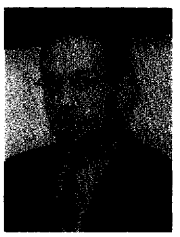
Experience counts for applicants. "We have specific cell biology positions at the Ph.D. and non-Ph.D. level," says Derald Lo, CTI's senior recruiter. "We want people with experience in signal transduction who have worked with enzymes. We also need people who have worked in tumor cell biology. We have positions in the analytical chemistry side for bioanalytical assays and various positions in organic chemistry. We are increasing our staffs in all those areas. In addition we're looking for people who have experience performing assays in a high throughput setting."

The company has simple criteria for recruits. "We look at people with the relevant background and skill set. That's the most important thing," says Lo. "It's helpful if they have other experience in addition. But we use the specific set of skills outlined for each position when we select scientists."

CTI makes a point of judging applicants' potential for promotion. "Project management is a very important factor as scientists advance their careers," Lo explains. "We look for leadership potential and the ability to communicate."

Lo admits that small companies such as CTI often have a tough job competing with the large pharmas for the brightest scientists. "It's always a challenge to find the talent that you need in order to succeed in this business," he says. So the company emphasizes its dynamic environment, in which an individual's contributions can make a significant difference to its scientific programs, and looks for employees with an entrepreneurial bent in addition to basic skills.

What advice does Lo have for potential recruits? "It's extremely important to do some research on the oncology arena to discover what goes on in the industry," he recommends. "Then get into a laboratory that is conducting research in cancer via an internship. The hands-on experience will be key in terms of getting your first position. It helps you to relate what you're learning academically to tangible experiences."



Trevan Ross

HOUSTON, Texas: Biotechnology company Tanox, Inc. uses a three-point strategy to develop cancer therapies. First it aims to understand the biology of the disease. Then it sets out to identify a key factor responsible for that biology. Finally it tries to generate an effective drug to target that component.

That approach to research demands new forms of training. "In the old days people used to have a significant background in cancer biology," explains Matthew Moyle, Tanox's vice president of research. "Now you have experts in gene expression profiling finding tumor-specific genes. One of the areas of interest is to find new markers and new molecules that can be used to target cancer drugs so that they can control cancer drugs directly."

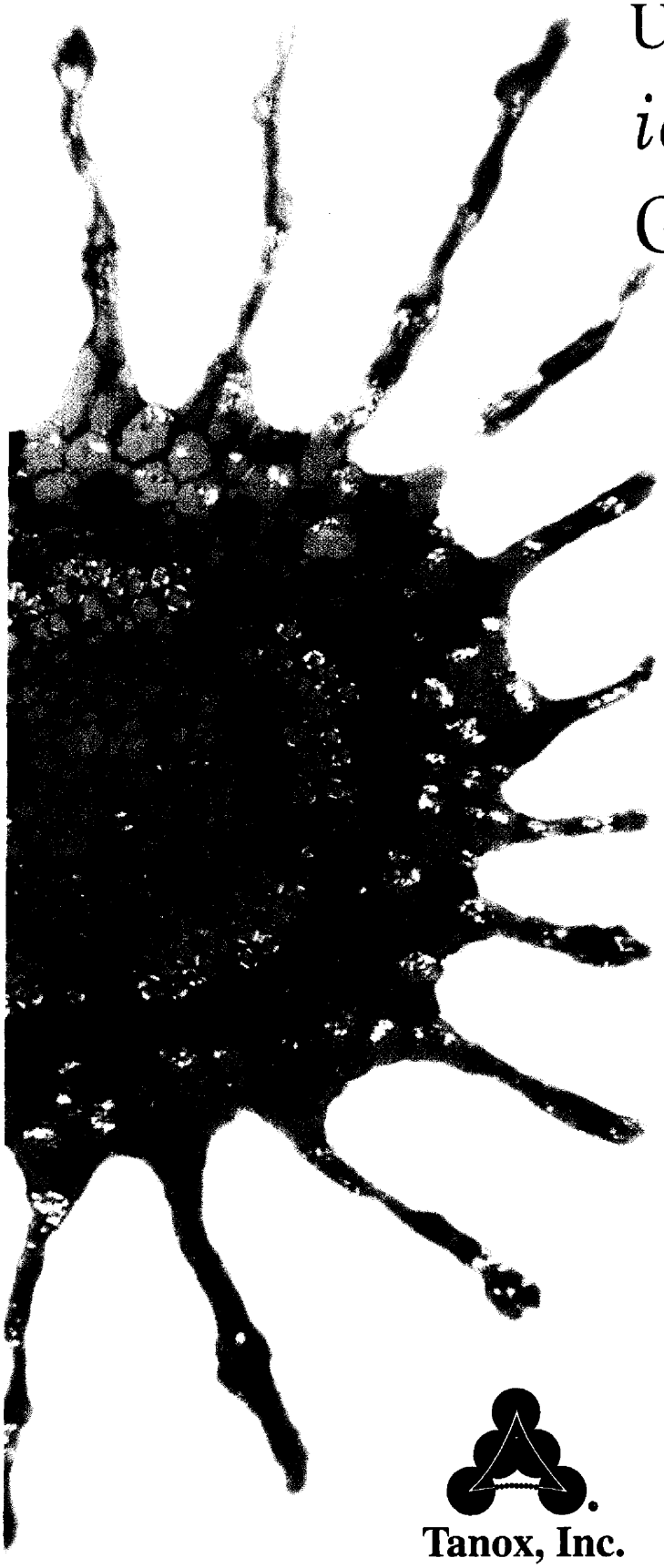
To carry out that approach, says human resources director Trevan Ross, "We're looking for candidates with M.D. and/or Ph.D. backgrounds in genomics, bioinformatics, and molecular biology. When you look at cancer research you're all the way down to the genome level."

When it recruits specialists in bioinformatics, the company prefers, where possible, to take on candidates who have completed academic courses in the subject. "There's a tendency in bioinformatics for people to go through a couple of years of graduate school and then take a high paying job," says Moyle. "I prefer to see somebody who has finished the program and who has gained some maturity and sophistication."

The company also seeks evidence of the ability to lead groups. "For principal investigators we look for people with prior experience managing," Moyle says. "Ph.D.s are not exactly trained as managers, but sometimes postdocs have managed graduate students. I even ask candidates if they have managed people in summer jobs."

Communications skills play a role in Tanox's hiring for areas such as regulatory affairs and investor relations. "It's important for scientists who deal with outside groups to be able to convince people working in those areas to get excited about science," says Ross.

One other key factor is the ability to see the broad picture. "Candidates must understand that they will be in a company in business to make drugs," explains Moyle. "I like to see scientists take an interest in the diseases they are working on. Nothing drives me crazy more than a candidate with years of experience who knows all about the molecule but little about the disease." ■



UNDERSTAND, *identify* AND GENERATE.

It's a three-point strategy that enables Tanox to focus on three key areas of worldwide health: immunology, infectious diseases and oncology. First, we understand the biology of the disease. Second, we identify a key factor responsible for that biology. And third, we generate an effective drug targeting that key component.

Tanox is a well-funded biotechnology leader in the discovery and development of new, therapeutic products for major human diseases and has a broad portfolio of exciting technologies currently in development. Join us in our state-of-the-art research and manufacturing facilities to create leading therapies that improve human health.

PROTEIN CHEMISTRY

Multiple opportunities available. Candidates should possess a BS, MS or Ph.D. in Biochemistry or a related discipline. Requires 1-3 years experience in protein expression, purification, and characterization. Must be familiar with HPLC, SDS-PAGE, IEF and other standard protein chemistry methods. Experience in the development of therapeutic antibody and real-time kinetic analysis (Biacore) is a plus.

GENOMICS / BIOINFORMATICS

RESEARCH SCIENTISTS

Responsible for identification and validation of novel therapeutic targets in the area of immunology and oncology. A Ph.D. in Molecular Biology or a related field with at least 2 years of post-doctoral training are required.

RESEARCH ASSOCIATES

Responsible for generating cDNA libraries, implementing quantitative RT-PCR methods, and gene expression profiling technologies. Requires a Bachelor's or Master's Degree in life sciences with 2+ years of experience.

BIOINFORMATICS SCIENTISTS

Responsible for providing DNA and protein sequence analysis/design and developing databases. Will also evaluate, integrate and develop computational tools for analysis of genomics and gene expression profiling data. Requires a Ph.D. or MS degree in Biology and/or Bioinformatics.

CELL BIOLOGY

RESEARCH SCIENTISTS

Multiple opportunities exist in the areas of inflammation and innate immunity as well as neurodegenerative diseases and apoptosis. Positions require a Ph.D. and/or M.D. with 2-4 years of post-doctoral research in these areas. Strong technical skills in cell-based assays, immunochemical assays, tissue culture, and/or gene cloning and apoptosis are a must.

RESEARCH ASSOCIATES

1) Requires a B.S. and/or M.S. with at least 3 years of experience in generation and characterization of monoclonal antibodies in a hybridoma core group. Strong technical skills in tissue culture, immunochemical and cell-based assays are a must. Experience in molecular biology and protein chemistry is desirable.

2) Requires a BS or MS with at least 1 year laboratory experience in both cell and molecular biology. Techniques include cell culture, ELISA, electrophoresis and chromatography, and gene cloning.

MOLECULAR BIOLOGY

ANTIBODY ENGINEERING / PHAGE DISPLAY (SCIENTISTS)

A minimum of 3 years postdoctoral training is requireed. Must have experience with antibody phage display, combinatorial library construction, expression and characterization of antibodies. Responsibilities include humanization, affinity maturation and discovery of antibodies.

MAMMALIAN EXPRESSION (SENIOR SCIENTIST, SCIENTIST, AND RESEARCH ASSOCIATES)

A minimum of 3 years experience in mammalian expression system, particularly for large-scale antibody production is required. Must have knowledge of expression vector construction, transfection, cell line screening, and medium optimization. Experience with serum-free medium and bioreactors is desired. Background must include cDNA cloning, and other expression system (E. coli, yeast, and baculovirus) is a plus.

PROCESS DEVELOPMENT

SENIOR PROCESS DEVELOPMENT SCIENTIST

This position leads the cell line development group in constructing and optimizing production cell lines expressing recombinant proteins. Requires a Ph.D. in Biological Science with at least 5 years of relevant industrial experience. Must be familiar with transfections, rapid screening methods and genetic modifications of novel cell lines.

SENIOR PROCESS DEVELOPMENT SCIENTIST

This position develops processes for the recovery and purification of recombinant proteins from mammalian cell culture. Requires a Ph.D. in Biochemistry or Protein Chemistry with at least 5 years of relevant industrial experience.

Candidates are invited to send resumes in confidence to:

recruiter@tanox.com

or fax to (713) 578-5002

EOE

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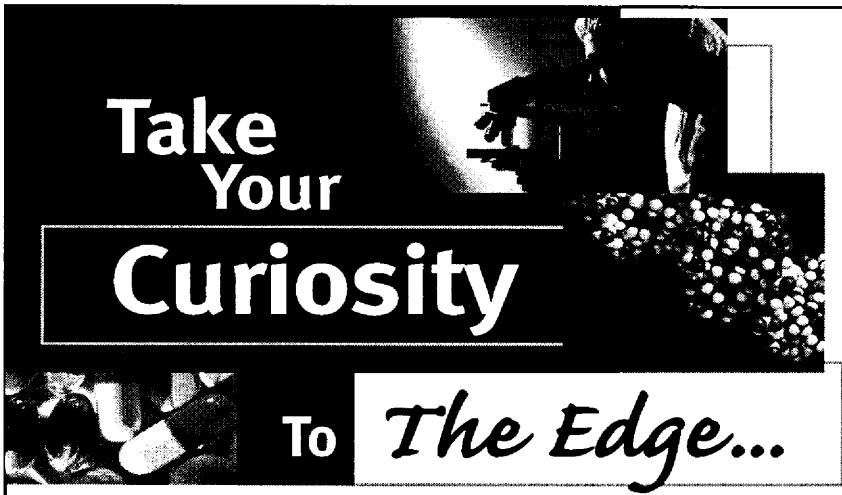

Take Your Curiosity To The Edge...

Research and development is the future of any pharmaceutical company. That's why **Pharmacia Corporation** invests more than $2 billion each year – to discover and develop the medicines that improve the health of people around the world. Our major R&D activities focus in the areas of cancer, arthritis/inflammation, infectious diseases, and disorders of the central nervous system, and we have a presence in ophthalmology, urology, and women's health. It is through exploring new avenues that we break through with world-leading therapeutic compounds and treatments. Take your career to the edge and investigate these challenging opportunities:

Kalamazoo, MI Opportunity:

SCIENTIST – BACTERIAL GENETICIST
Ad Code #00-1615

The successful candidate will work as part of a multi-disciplinary team developing new antibiotics. Requirements include a Ph.D. degree with postdoctoral experience and a solid background in bacterial genetics, genomics, microbiology, or molecular biology. Experience in Gram-positive genetics is highly desirable. This position may require the candidate to utilize functional genomics technologies to identify and validate targets. **Respond to http://respond.webhire.com/job/id?479-r1615-J2**

St. Louis, MO Opportunities:

MOLECULAR PHARMACOLOGIST
Ad Code #00-1365

The successful candidate will design/conduct studies aimed at the elucidation of the mechanism of action of novel anti-cancer agents in vitro & in vivo. Requirements include a Ph.D. in Biology, Biochemistry or Pharmacology with postdoctoral experience and a solid background in biochemistry, cell biology, enzymology and in vivo pharmacology. Pharmaceutical industry experience is a plus. We encourage exceptionally qualified individuals with BS/BA/MS degrees and equivalent experience to apply. **Respond to http://respond.webhire.com/job/id?479-r1365-J1**

SR. RESEARCH BIOLOGIST
Ad Code #01-2524

We seek a Ph.D. Scientist with 2-5 years of research experience specializing in approaches towards the identification of new targets for lipoprotein metabolism and/or insulin resistance to join our Cardiovascular & Metabolic Diseases (CVMD) division, which employs state-of-the-art technologies to identify targets and design novel therapeutics. The successful candidate will enjoy working collaboratively and will possess excellent oral/written communication skills. Expertise in methodologies aimed at novel disease target identification and familiarity with gene regulation in lipid biochemistry and/or insulin action are highly desirable. **Respond to http://respond.webhire.com/job/id?479-r2524-J1**

Your efforts will be rewarded with generous compensation and benefits. **For immediate consideration, please respond by our preferred online method utilizing the appropriate URL above. Or, you may fax your resume to the Pharmacia resume processing center, indicating appropriate Position # & referencing Science Magazine, at (520)287-0963.** Pharmacia Corporation is an equal opportunity employer, we value a diverse combination of ideas, perspectives, and cultures. EEO/AA EMPLOYER M/F/D/V

PHARMACIA

www.pharmacia.com

Target Validation

Myriad Genetic's proteomics platforms include our yeast two-hybrid-based ProNet™ and our mass spectrometry-based ProSpec™ groups. These combined programs are being used to generate detailed protein-protein interaction maps of the human proteome. Our goal is to understand the functional significance of specific proteins and to evaluate their potential as drug targets. To do so, we are expanding our target validation group.

Research Scientist - Target Validation

We are seeking individuals with expertise in cell-based assays. These assays will be used to define the cellular role of candidate drug targets identified by our ProNet™ and ProSpec™ proteomics platforms. This will involve verifying and characterizing the functions proteins play in the pathways/networks we have mapped them to. Qualified applicants will have a solid background in mammalian cell-based technologies and will possess thorough knowledge of expression and reporter systems, cell models, tissue culture techniques (primary and tumor cell lines), and analytical methods such as FACS. Moreover, the scientist in this position will evaluate and adapt new assay systems. Successful candidates will have a Ph.D. and 2-5 years of post-doctoral experience.

Research Associate - Target Validation

Our target validation group will also include individuals with experience in mammalian cell culture. These individuals will be carrying out and analyzing cell culture-based assays. The successful applicant will have a BS or MS degree and at least 2 years of laboratory experience in tissue culture. This person will work with research scientists in the target validation group, and self-starting individuals will have the opportunity to carry out independent experiments.

Our facilities are located in Salt Lake City at the foot of the Wasatch Mountains, within minutes of a wide variety of outdoor recreational activities. Applicants should send, fax, or e-mail 1) their letter of interest specifying the position, 2) a complete resume or CV (including a concise research summary and a technical skills section), and 3) the names of three professional references to:

Myriad Genetics, Inc.
Attn: Human Resources
320 Wakara Way,
Salt Lake City, Utah 84108-1214
FAX (801) 584-1144
humanres@myriad.com

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Online web site at
http://www.myriad-pronet.com

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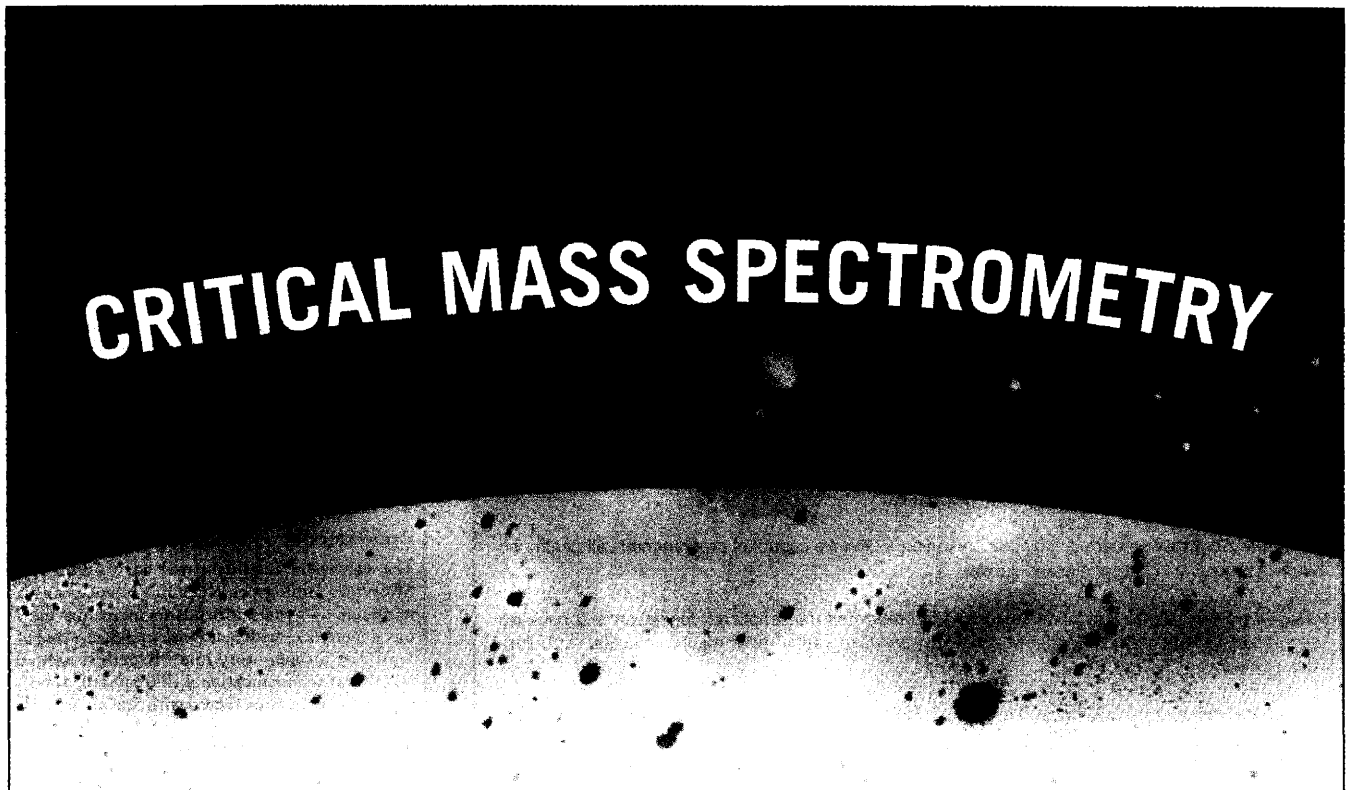

The Company

Oxford GlycoSciences (OGS) specialises in proteomics-based drug discovery and development. Using a series of integrated, proprietary technologies and bioinformatics, we rapidly and precisely identify proteins associated with diseases. Our ambitious plans for mass spectrometry will allow us to reach unprecedented levels of throughput in protein research, whilst providing significant new information on the role of proteins in biological functions.

Mass Spectrometry at OGS

Our commercial Mass Spectrometry laboratories are among the best equipped in Europe and we have established alliances with leading mass spectrometry manufacturers to ensure our scientists remain at the leading-edge of future developments. We already have several Q-TOF and MALDI-TOF instruments in place and will be extending our technology to encompass a Fourier Transform Ion Cyclotron mass spectrometer and TOF-TOF, Q-TOF and Q-STAR mass spectrometers. This, in conjunction with automated capillary liquid chromatography and robotic MALDI sample preparation, make the laboratory a centre of excellence in industrial proteomics.

The Roles

As a result of this expansion the challenges and opportunities we provide for people with experience in biological mass spectrometry are immense. We are seeking scientists to research and develop new mass spectrometry methodologies, evaluating these for use in industrial scale proteomics and planning and deploying these into ultra high throughput proteome operations. You should have a PhD/MSc or equivalent experience, ideally including hands-on exposure to developing new methodologies in at least one of the following areas: FTICR-MS; LC-MS; ESI-MS; MALDI-TOF; TOF-TOF; peptide MS/MS.

We also have opportunities for biochemists with proteome experience to support protein identification as part of the mass spectrometry data analysis team. Relevant experience gained through MSc or PhD research and extensive use of web based search engines are essential for this role.

In addition we require scientists, with excellent IT skills, to develop mass spectrometry related software for the interpretation of mass spectra in a high throughput process and to transfer the ideas of the group into working algorithms. With a background in physics, chemistry or biological sciences, you should have experience of experimental spectroscopy as well as programming skills in C/C++, Visual Basic, Perl or FORTRAN.

If you wish to explore one or more of these exciting opportunities please send your CV, with salary details, to our retained consultant, Hilary Adams, at Bernard Hodes, Salisbury House, Bluecoats, Hertford SG14 1PU.
Direct: + (0) 1992 514332. Fax: + (0) 1992 505301. E-mail: hadams@hodes.co.uk

www.ogs.com

O G S

Postdoctoral Training Positions

Department of Biochemistry and Molecular Biology,
The University of Texas M. D. Anderson Cancer Center
Houston, Texas

Postdoctoral training positions are available to investigate a wide range of problems concerned with cell growth, differentiation, and development. Approaches include developmental genetics using genetically engineered mice and Drosophila, chromatin structure and remodeling, transcriptional regulatory mechanisms, protein structure determination using X-ray crystallography, cell death signaling, and experimental embryology. The University of Texas M. D. Anderson Cancer Center is part of the Texas Medical Center, the largest in the world, and offers trainees unparalleled opportunities for career development. Training stipends are available through a National Institute of Child Health and Human Development Training Grant (US citizens and Permanent Residents) and through individual faculty grants.

Faculty Interests

Michelle Barton (mbarton@mdanderson.org): Mechanisms of regulated and aberrant gene expression during development, tissue regeneration and cancer, especially as influenced by chromatin structure modification and DNA replication

Andreas Bergmann (abergman@mdanderson.org): Genetic control of programmed cell death and survival signaling in Drosophila and cancer

Xiaomin Chen (xichen@mdanderson.org): STAT-mediated transcriptional regulation and negative regulation of the Jak-STAT pathway; X-ray crystallography and macromolecular structure determination

Yasuhide Furuta (yfuruta@mdanderson.org): Molecular mechanisms underlying organogenesis and inductive tissue interactions by secreted signaling molecules; transgenic mice and gene targeting

Georg Halder (ghalder@mdanderson.org): Organogenesis; eye development and evolution in Drosophila

Ray Jacobson (rhj@mdanderson.org): Structure and function of proteins associated with the general transcription machinery; X-ray crystallography and macromolecular structure determination

Randy Johnson (rjohnson@mdanderson.org): Pattern formation in vertebrate development, mouse developmental genetics, human genetic disease

William Klein (wklein@mdanderson.org): Transcription factors and control of gene expression in embryo development; cell fate specification and differentiation

Warren Liao (wliao@odin.mdacc.tmc.edu): Cytokine signal transduction and NF B activation: transcriptional control of gene expression.

Pierre McCrea (pmccrea@mdanderson.org): Cellular and developmental roles of catenin proteins in cell adhesion and motility, and intracellular and nuclear signaling

Sharon Roth (syr@mdanderson.org): Cellular differentiation and gene regulation; chromatin structure and histone acetylation

Grady Saunders (gfsaunde@mdanderson.org): Molecular and human genetics of tumor suppressor genes; molecular genetics of transcription factors encoded by Wilm's tumor and aniridia genes.

Robert Schulz (ras@mdanderson.org): Genetic hierarchies in development; myogenesis and neurogenesis in Drosophila; Role of MEF2 transcription factor in Drosophila development

Shinako Takada (stakada@mdanderson.org): Studies of novel initiation complexes involved in transcription from TATA-less promoters; Hepatitis B viral oncogene, TBP-related factor

For more information, contact individual faculty members or visit our web page at http://www.mdanderson.org/DEPARTMENTS/biochem/ or write to:

William Klein, Ph.D.
Chairman, Dept. of Biochemistry and Molecular Biology, Box 117
The University of Texas M. D. Anderson Cancer Center
1515 Holcombe Boulevard
Houston, TX 77030

MDACC is an Equal Opportunity Employer, smoke free environment.
Women & minority candidates are encouraged to apply.

THE UNIVERSITY OF TEXAS
MD ANDERSON
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Staff Scientist
Research and Development

Company

Molecular Dynamics, founded in July of 1987, develops, manufactures and markets systems that accelerate genetic discovery and analysis. In addition to a fun and challenging environment, we offer an attractive salary and a comprehensive benefits package, which includes a sabbatical program.

Position

The chosen candidate will be the technical lead for a small group of scientists in developing and managing the applications of Molecular Dynamics gel and blot imaging product line. This person will also be responsible for defining and producing Application Notes and sales training materials for new and existing products. Moderate travel, both domestically and internationally, will be required.

Requirements

The successful candidate will have a Ph.D. in Molecular Biology or other life science, and a minimum of 6 years of hands-on molecular biology experience, with 3 of those in industry and at least 1 in a supervisory role. Excellent written and verbal communication skills required, as well as a good publication record with first authorship.

For consideration:

Please forward your resume, along with a cover letter telling us a little bit about yourself, to **Molecular Dynamics, Professional Staffing, job code: 961, 928 Arques Avenue, Sunnyvale, CA 94086-4620. For the most efficient and quickest processing, please e-mail your resume to jobs.mdyn@am.apbiotech.com**

POSTDOCTORAL POSITION AVAILABLE

A postdoctoral position is available at the Physical Biosciences Division of the Lawrence Berkeley National Laboratory starting immediately. The selected person will participate in studies of the structure and dynamics of transcription and transcription-coupled repair complexes using atomic force microscopy (AFM). This project is part of a larger collaboration in which the same systems will be simultaneously investigated using electron microscopy, optical tweezers and single molecule fluorescence microscopy.

Applicants should have a Ph.D. degree and possess experience in preparative molecular biology and biochemistry and in the imaging of biological systems with the AFM. Experience with protein-nucleic acid interactions and transcription systems is highly desirable. The appointment will be made for an initial period of one year and will be renewable for up to three years depending on the progress.

Interested individuals should send a letter and a *curriculum vitae* and include the address of three references by April 1st or as soon as possible to employment@lbl.gov (no attachments, please), mail to LBNL Staffing, One Cyclotron Road, MS: 937-600, Berkeley, CA 94720, apply online at http://cjo.lbl.gov/, or FAX to (510) 486-5870. Reference Job #PB/013293/JS. AA/EOE.

BERKELEY LAB

NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

The Nanyang Technological University (NTU) was established in 1991. It has its origin in the former Nanyang Technological Institute which was set up in August 1981 with the primary function of conducting degree and postgraduate courses and research in engineering and technology. Today, NTU has become one of the top Universities in Asia and has gained excellent reputation as a university of industry and business. It has built up strong Schools in the fields of engineering and technology, business, education and mass communications. It has currently an enrolment of more than 14,000 undergraduate and 4,000 graduate students.

Faculty Appointments

THE SCHOOL OF BIOLOGICAL SCIENCES

As part of the Singapore Government's high priority initiatives to boost the Life Sciences industries in the country, NTU will establish a College of Life Sciences. Capitalising on the strengths of NTU in the engineering and business areas, the College will offer new multi-disciplinary programs in Life Sciences best suited for the cross-functional capabilities needed for the R&D, manufacturing and management sectors of the Life Sciences industries.

In the first phase of the development of the College, NTU is pleased to announce the establishment of the **School of Biological Sciences**. This School will offer a degree course leading to a Bachelor of Science (Honours) in Biological Sciences. The course aims to produce a new generation of graduates who are not only highly knowledgeable in biological sciences and basic scientific research skills, but also strong in business acumen for entreprenuership in Life Sciences. The School will take in its first batch of students in July 2002. More details of the establishment of the School of Biological Sciences can be found in the website **http://www.ntu.edu.sg/personnel/sbs.htm**.

Invitation for applications

The University is inviting high calibre applicants who possess a PhD and preferably with a proven track record in research and teaching at university level, to apply for faculty positions in the School in the following areas:

Genetics, Molecular and Cell Biology, Biochemistry, Computational Biology and Microbiology

Successful applicants will be offered attractive remuneration package commensurate with their qualifications and work experience. The annual salary, which will be paid in monthly instalments, comprises the Monthly Basic Pay (multiplied by 12 months) and Group Bonus. The current ranges of the annual salary, inclusive of the non-contractual Group Bonus amount (which is presently equivalent to 2 months of the Monthly Basic Pay) are as follows:

Annual Salary (for 12 months) Inclusive of Group Bonus

Assistant Professorship	**S$ 71,400**	**-**	**S$123,200**
Associate Professorship	**S$110,600**	**-**	**S$208,600**
Professorship	**S$182,000**	**-**	**S$257,600**

(US$1 = S$1.75 approximately as at 5 February 2001)

In addition to the above, an Individual Performance Bonus may be paid solely at the discretion of the University depending on the performance of the individual and the University.

Leave and medical benefits will be provided. Other benefits, depending on the type of contract offered, include provident fund benefits or a Special Payment for Foreign Staff, settling-in allowance, subsidised housing, children's education allowance, passage assistance, and baggage allowance for transportation of personal effects to Singapore. Staff members may undertake consultation work, subject to the approval of the University, and retain consultation fees earned.

Applicants should complete and send their application form (which can be downloaded from http://www.ntu.edu.sg/personnel/) or their detailed curriculum vitae, which should include their areas of research interest, list of publications and the names and addresses, e-mail addresses and telefax numbers of three referees to: **Director of Personnel, NANYANG TECHNOLOGICAL UNIVERSITY, Personnel Office, Administration Building, Level 4, 50 Nanyang Avenue, Singapore 639798. Telefax: (65) 791-9340; Internet: EHLEE@ntu.edu.sg**

A leading innovator in pharmaceutical and drug delivery, discovery and development, Cephalon is creating novel therapies to treat neurological disorders, sleep disorders and cancer. It is a stimulating, multi-disciplinary scientific community where your talents and ideas are inspired by the excitement of discovery. We currently offer the following opportunities with our Salt Lake City operations team.

Scientist 2

Responsible for initiating and directing assigned drug delivery research projects at the pre-formulation, formulation development, and pre-clinical testing levels. Investigates the application of scientific principles/concepts to research problems, product development, and potential inventions.Requires PhD in a relevant scientific discipline and 2-5 years experience in a research and/or development enivronment. Post-doctoral training may serve as experience. Expert knowledge of scientific principles and concepts expected with a reputation as an emerging leader in field of drug dellivery.

Senior Scientist

The Senior Scientist is responsible for initiating, managing and executing assigned drug transport research projects. Will develop predictive models of mucosal drug transport to accelerate discovery and development process for novel drug delivery technology. Requires a PhD in a relevant scientific discipline and 8 years experience in a research and/or development environment. Expert knowledge of scientific principles and concepts expected with a reputation as emerging leader in field of drug delivery.

Research Associate 2 / Sr. Research Associate

Successful candidates will independently analyze raw materials, drug products and biological samples. The Research Associate position requries a Bachelor's/Master degree in scientific discipline or equivalent with a minimum of 2-5 years experience with a Bachelors or 0-2 years with a Masters and demonstrated working knowledge of scientific principles. The Sr. Research Associate position requires a Bachelor's degree in a scientific discipline and 8 years experience or Master's degree and 5 years experience or equivalent theoretical/technical depth. Previous experience in the pharmaceutical industry required.

In addition to our stimulating work environment, Cephalon offers competitive salaries and also provides a full benefits package. For consideration, send your resume, referencing job title to: **Cephalon Inc., Attn: Human Resources, 4745 Wiley Post Way, Salt Lake City, Utah 84116. Fax: (801) 595-1406**

An Equal Opportunity Employer

Cephalon

GENETICA

Staff Scientists, Ph.D.

Genetica, a start-up biotech company located in the heart of Cambridge, is hiring two staff scientists. Genetica has developed proprietary technology that enables the discovery of genes by function-based, phenotypic selection (see Hannon et al., *Science* **283**:1129-1130 and **www.genetica.cc**). We are seeking an enthusiastic scientist to lead a group whose mission is to develop innovative screens for genes that stimulate reverse cholesterol transport, a process that elevates serum levels of LDL cholesterol. In addition, we are seeking an imaginative group leader to develop new technologies that further facilitate function-based screening in mammalian systems. This individual will also develop cell-based assays that target disease states, such as diabetes, inflammation, obesity, or Alzheimer's disease, for intervention.

Mail or fax CV to **Amy Dixon, One Kendall Sq., Bldg 600, Cambridge MA 02139; FAX 617-679-0666.**

Windber Research Institute
Member Conemaugh Health System

WRI is a biomedical research organization in scenic western Pennsylvania. We invite outstanding and highly motivated scientists to join a multidisciplinary team focused on basic and translational research. ***WRI*** is adequately equipped for high throughput gene and protein expression profiling, microarray construction, LCM, tissue banking, bioimaging and bioinformatics.

Program Directors: Will establish and direct internationally recognized research programs in cancer/tumor biology using modern methods in immunology, molecular biology, biochemistry, cell biology, genetics, virology, or pharmacology. The successful candidate will oversee the day-to-day activities of other research staff. A Ph.D. and/or MD and 5+ years post-graduate cognate research experience is required. Demonstrated experience in conducting independent research and attracting extramural funding will be a plus.

Staff Scientists: The ideal candidate will have extensive hands-on experience and a demonstrated ability to design and implement research in any of the areas listed above. PhD or equivalent and 2+ years post-graduate research experience in the relevant area is desired.

Research Associates: Requires B.S. or M.S. in biology, chemistry or equivalent with 3+ years experience in any of the areas outlined under program directors. Experience in DNA sequencing, mass spectroscopy; tissue banking or bioimaging/microscopy is a plus.

Contact: Send resume, cover letter, statement of research experience/goals, and 3 professional references to **Windber Research Institute, c/o Windber Medical Center, Director/Human Resources, 600 Somerset Ave., Windber PA 15963.** Direct questions to rsomiar@conemaugh.org.

Equal Opportunity Employer

THE OHIO STATE UNIVERSITY

TEACHING & RESEARCH
POST DOCTORAL RESEARCHER
Department of Evolution, Ecology, and Organismal Biology

The Department of Evolution, Ecology, and Organismal Biology at The Ohio State University is accepting applications for a Post Doctoral Researcher. This position combines an opportunity for professional growth afforded by teaching in a formal undergraduate course setting with a traditional postdoctoral experience in basic research.

One third of the position's responsibilities involve teaching. The successful candidate will teach an introductory human physiology lecture course during each of three academic quarters, with professional mentoring supplied by an accomplished master teacher as appropriate; supervise graduate teaching assistants; assume other roles of an instructor of record. The remaining responsibilities are in research. Incumbent will participate in basic biological research in one or more of the department's active research labs or in the pedagogy of biology through existing teaching programs.

This position is renewable to a maximum of three years. Competitive salary and funding to attend a professional meeting are offered. The university offers a comprehensive benefits package including medical, dental, vision, and life insurance. To assure consideration, application materials must be received by April 15, 2001. Forward a curriculum vitae, statements of teaching and research interests, and names and phone numbers of three references to:

Postdoctoral Search
Department of Evolution, Ecology, and Organismal Biology
The Ohio State University, 1735 Neil Avenue
Columbus, OH 43210

Applicants are also urged to contact specific potential postdoctoral research hosts in the department (www.biosci.ohio-state.edu/~eeob/).

The Ohio State University is an Equal Opportunity, Affirmative Action Employer. Women, minorities veterans, and individuals with disabilities are encouraged to apply.

STOWERS INSTITUTE®
FOR MEDICAL RESEARCH

PROFESSIONAL AND POSTDOCTORAL POSITIONS IN GENOMICS AND BIOINFORMATICS

The Stowers Institute for Medical Research conducts basic biomedical research on the genes and proteins that control cell proliferation, differentiation, migration, and death. To ensure its competitive position in comparative analysis of genes and proteins across the range of model genomes, the Stowers Institute is building world-class capabilities in genomics and bioinformatics. The following positions are available immediately:

ASSOCIATE DIRECTOR – GENOMICS CORE FACILITY

An experienced researcher is sought to lead sequencing and DNA microarray operations at the Institute. The Associate Director will recruit and supervise the team that will provide these essential resources to scientists at the Institute. The Associate Director will work closely with Stowers' scientists, offering technical instruction and scientific advice while collaborating on the development of new genomic technologies and applying them to research problems central to the mission of the Institute. Requirements: Ph.D. or equivalent; substantial experience in genomic research, preferably in managing sequencing and microarray facilities; and strong publication record.

SENIOR RESEARCHER – BIOINFORMATICS

An experienced researcher is sought who will assemble a state-of-the-art collection of computational tools for high-throughput analysis of sequence and gene expression data, will ensure the availability of those resources to Stowers' scientists and collaborators through education and participation in joint research projects, and will be expected to develop new algorithms and approaches to gene expression analysis or proteomics. Requirements: Ph.D. or equivalent; strong publication record in computational biology; C/C++/Perl, Unix/Linux.

SCIENTIFIC PROGRAMMER

An experienced programmer is sought who will support scientific software at the Institute, manage in-house data flow, and develop Intranet protocols for data analysis. Requirements: experience in engineering software for molecular biology; C/C++/CGI/Perl, Unix/Linux. Experience in RDBMS is an asset.

POSTDOCTORAL FELLOWS – BIOINFORMATICS

Fellows are sought who will work on computational analysis of sequence-structure-function relationships in proteins and of protein repertoires available from genome sequencing projects (examples in *Curr Opin Genet Dev* 1999 9:709-714; *Genome Res* 2000 10:1468-1484). Requirements: Ph.D. in any discipline; knowledge of molecular biology and genome technologies; C/C++/Perl, Unix/Linux.

To apply, send CV, statement of research experience and interests, list of references, and cover letter to **Cheryl Flood, Director of Human Resources, Stowers Institute for Medical Research, 1000 East 50th Street, Kansas City, Missouri 64110** or at **clf@stowers-institute.org.** For informal inquiries about any of the above positions, contact Dr. Arcady Mushegian, Director of Bioinformatics: **arcady_mushegian@stowers-institute.org**

To learn more about the Stowers Institute go to our web site at **http://www.stowers-institute.org.** The Stowers Institute is an Equal Opportunity Employer.

If you are challenged by the possibilities of changing the world with great care...inspired by the opportunities of this challenge...desire to be part of an innovative premier healthcare company that celebrates your successes as well as our own...then, you have *found it at Bayer.* Right now, we have the following exceptional opportunities available within our Pharmaceutical Division headquartered in **West Haven, CT.**

Assistant Director, Scientific Communications

You will be responsible for developing and implementing a scientific communication strategy for one or more drug products or therapeutic areas to achieve Bayer's US and international marketing and sales objectives. You will communicate scientific and clinical data to the medical community by writing and supervising the creation of articles for the medical literature, presentations for national conferences, slide kits, and other educational material. A strong scientific/medical background, a Ph.D., MD, or PharmD in a scientific/medical discipline, plus a minimum of five years of experience in a related scientific/medical/pharmaceutical area required. A minimum of four years of experience must include medical writing. Demonstrated ability to interpret and present scientific and clinical trial data, and excellent editorial and interpersonal skills essential. **ASMW0866**

Scientific Editor

You will support the Associate and Assistant Directors by writing and editing scientific articles, poster and slide presentations for national conferences, and other educational materials. You will perform literature searches, track project development, revise publications based on critical review and interface with medical publishers and opinion leaders. Requires a strong scientific background, a Ph.D. or PharmD in a scientific/medical discipline, plus a minimum of 3 years experience in a related scientific/medical/pharmaceutical area, at least two of which must include medical publishing, or a Master's degree plus a minimum of five years of experience in a related scientific/medical/ pharmaceutical area, at least two years in medical publishing or equivalent education and experience required. **ASMW0910**

Find it for yourself at **www.founditatbayer.com** . Please forward your resume, clearly referencing Job Code to: **Bayer Corporation, Pharmaceutical Division, P.O. Box 3238, Scranton, PA 18505-0238. Fax: 1-888-805-7474; email: bayerpharma@alexus.com.** No agencies or phone calls please. We are an Equal Opportunity Employer committed to diversity in the workplace.

Bayer

Join us in changing the world with great care.

Biotechnology

Best in your field?
We're looking for the cream of the crop!

Torrey Mesa Research Institute, (formerly Novartis Agricultural Discovery Institute, Inc.), a research institute of Syngenta Research & Technology, is one of the largest, single, fully-funded research endeavors dedicated to agricultural genomics, consumer health, and post-genomics technology. As an innovative and team-oriented company, we develop and apply cutting-edge biotechnology to match genes with traits for improved agribusiness products, including consumer and animal health products. We are seeking the following qualified individuals:

Associate Scientist

Incumbent will conduct gene expression analysis using DNA microarray technology to discover novel genes important to agriculture. The position requires a Ph.D. with 0-2 years' experience or an MS with 5 years' experience in molecular biology, plant biology, or biochemistry. Demonstrated experience in mRNA and cDNA manipulation and fluorescent labeling is required. Experience with DNA microarray fabrication and large-set data analysis is highly preferable. Strong communication and organization skills and the ability to work in a team environment are essential. **Job Code: AS/TZ-SCI**

Postdoctoral Associate

We are looking for a talented and enthusiastic individual to fill a postdoctoral associate position in Fumi Katagiri's group in the Plant Health Department at Torrey Mesa Research Institute (TMRI, formerly known as Novartis Agricultural Discovery Institute). The successful candidate will join a research team studying interactions between plants and their pathogens using model systems. We emphasize collaborative research to take advantage of genomics and proteomics technologies available within our Institute. The candidate for this position must have a Ph.D. in molecular biology, genetics, or a related discipline. Strong experience in general molecular biology is required. Computer proficiency (programming skills) and practical knowledge in statistics are highly desirable. Experience in plant systems is preferred but not necessary. Exceptional communication and team building skills imperative. **Job Code: PDA/FK-SCI**

TMRI offers excellent compensation and a great benefits package, including 401(k) with match and immediate vesting. For confidential consideration, please send cover letter indicating position of interest and resume including salary history and expectations to:
Torrey Mesa Research Institute, Attn: HR/(Job Code), 3115 Merryfield Row, San Diego, CA 92121-1102. Fax: (858) 812-1096. EOE

syngenta

HGS

HUMAN GENOME SCIENCES

The Art and Science of Discovery

The mission of Human Genome Sciences is to treat and cure disease by bringing new gene-based medicines to patients around the world. We are dedicated to discovery for health. We believe that our genomics-based drugs will usher in a new generation of healthcare products. Our medicines will use the human body's natural substances – genes, proteins and antibodies – to repair, rebuild and restore to normal health damaged, diseased and aged tissues. We are currently seeking the following professionals:

Scientists in Formulation

Individuals will be responsible for developing and evaluating formulations for protein pharmaceuticals. The ideal candidates will have a strong background in protein biochemistry, biophysical spectroscopy (CD, FTIR, DSC, Fluorescence), protein drug delivery, as well as experience in excipient screening and stability indicating method development. Other responsibilities include evaluating novel delivery systems, preparing submissions for the FDA, and supporting stability for early clinical material.

Qualified candidates will have a Ph.D. in Chemistry or related field with 0-5 years of formulation experience. Strong written and oral communication is expected, and knowledge of cGMPs and regulatory requirements is desired. Job Code: TS 3/16.

HGS encourages the pursuit of excellence and offers a competitive benefits package, including educational reimbursement, subsidized health club membership, and a 401(k) with employer match. Look for us on the Internet at www.hgsi.com for additional information. For immediate consideration, please send/fax your resume to Human Resources Department, Human Genome Sciences, Inc., Job Code #, 9410 Key West Avenue, Rockville, MD 20850; fax: (301) 309-1845. Our preferred method for receiving resumes is via our Web page or via e-mail. EOE, M/F/D/V.

Visit our Web site to learn more about us: http://www.hgsi.com

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POSTDOCTORAL FELLOW
STATISTICAL GENETICS

The Max McGee National Research Center for Juvenile Diabetes at the Medical College of Wisconsin and Childrens Hospital of Wisconsin seek an enthusiastic and able postdoctoral fellow to take a lead analytical role in the Center's mission of finding genetic determinants for type 1 diabetes. Position requires a Ph.D. in Mathematics, Computer Science or Statistics or a very able quantitative biologist. The successful candidate will join an interdisciplinary team at the Center with both biological and mathematical/physical science backgrounds who will use emerging technologies to integrate mapping, sequencing and expression data to produce a functional genomics framework to delineate diabetogenic pathways for further investigation. Excellent training in statistical genetics and good exposure to molecular genetics and functional genomics.

Interested candidates may send a curriculum vitae with names and addresses of 3 references to:

Medical College of Wisconsin
Department of Pediatrics
Attn: Jane Martell
8701 Watertown Plank Rd, MFRC756
Milwaukee, WI 53226

MEDICAL COLLEGE OF WISCONSIN

EOE/AA/M/F/D/V

FACULTY POSITION
In Immunology
Georgia State University

Applications are invited for an anticipated tenure-track position in Immunology in the Department of Biology at Georgia State University. Appointment will start August, 2001. Applicants at the assistant professor level will be expected to establish independent, vigorous, externally funded research programs. Applicants at more senior levels should have well established, externally funded research programs. Applicants with expertise in aspects of molecular or cellular immunology that complement existing research programs within the Cell Biology and Physiology or Molecular Genetics and Biochemistry disciplines are particularly welcomed.

The successful candidate will be encouraged to interact with faculty in the molecular biology, neurobiology and applied and environmental microbiology programs. The appointee will also participate in instruction at the undergraduate and graduate M.S./Ph.D. levels. The Department has excellent research facilities.

For more information see **http://www.gsu.edu/biology.** Reviews of applications will commence March 31, 2001. Applications including CV, reprints, statement of research plans, and three letters of recommendation should be sent to the **Chair of Immunology Search Committee, Department of Biology, P.O. Box 4010, Georgia State University, Atlanta, GA 30302-4010.**

Georgia State University, a Research University of the University System of Georgia, is an Equal Opportunity Employer.

NATIONAL® CANCER INSTITUTE

Center of Cancer Research

Laboratory of Biosystems and Cancer

The NIH is an Equal Opportunity Employer.

The Laboratory of Biosystems and Cancer (LBC), Center of Cancer Research, National Cancer Institute, National Institutes of Health has been established to build excellence in the use of the fundamental knowledge of molecular and integrative biology to understand the molecular and environmental causes of cancer. Pursuit of both molecular and environmental causes of cancer is a synergistic approach to cancer prevention and treatment. Knowing the target genes for environmental agents allows the development of improved methods for the identification of environmental carcinogens in both laboratory studies and environmental studies. The LBC is actively involved in basic research on the identification of new cancer genes and understanding of mechanisms of action of specific genes in cell signaling, cell proliferation, and cell death. Based on advances in gene discovery, the LBC develops new models of carcinogenesis that are used to understand the cancer process *in vivo* and the influence of environmental agents on cancer.

The LBC now invites applications for a tenured investigator. The applicant should be able to show that they have the scientific ability and expertise to build an independent basic research program in the novel approaches to cloning of human genes and development of expression systems to study the function of genes in mammalian systems.

This position is available for a Ph.D, M.D., or M.D., Ph.D. with a salary commensurate with education and experience. A one or two-page statement of research interests and goals and accomplishments should be submitted in addition to three letters of recommendation and a curriculum vitae to:

Ms. Mary Custer
Technical Laboratory Manager
Laboratory of Biosystems and Cancer
Center of Cancer Research, NCI
Building 40, Room 2609
Bethesda, Maryland 20892
Tel: **(301) 594-8531**, Fax: **(301) 480-2772**
e-mail: ***mc90e@nih.gov.***

Department of Biological and Diagnostic Sciences
Faculty of Dentistry
University of Toronto

The Faculty of Dentistry, University of Toronto invites applicants for a full-time, tenure-stream Assistant Professor position in the Department of Biological and Diagnostic Sciences. Applicants must have a Ph.D. (or equivalent) in molecular or developmental biology, at least 2 years of post-doctoral research training, and have demonstrated teaching and research expertise. Applicants who have a dental degree are encouraged to apply.

Responsibilities will include teaching at both undergraduate and graduate levels in the biological sciences, and research in molecular or developmental biology. Extramural private practice privileges are permitted one day per week for clinically qualified candidates. Rank and salary would be commensurate with the candidate's qualifications and academic accomplishments. The University of Toronto is strongly committed to diversity within its community. We especially welcome applications from visible minority group members, women, Aboriginal persons, persons with disabilities, and others who may add to the diversity of ideas.

Applicants should arrange for three reference letters, as well as a detailed curriculum vitae, to be received by May 7, 2001 at the following address:

Professor David Mock
Associate Dean
Department of Biological and Diagnostic Sciences
Faculty of Dentistry
University of Toronto
124 Edward Street
Toronto, Ontario M5G 1G6

For additional information regarding the position please contact Dr. David Mock: telephone (416) 979-4920, Ext. 4485, email: david.mock@utoronto.ca

GLOBAL OPPORTUNITIES

Fellowship Program for Postdoctoral Research in Japan

In
Scientific, Technical, Engineering, and
Medical fields
at National Research Institutes

Details available on web site:
http://stafellow.jst.go.jp/index.html

or

Department of International Affairs
Japan Science and Technology Corporation (JST)

UCR/UCLA THOMAS HAIDER PROGRAM IN BIOMEDICAL SCIENCES
UNIVERSITY OF CALIFORNIA, RIVERSIDE

MOLECULAR MECHANISMS OF HUMAN DISEASE

The Division of Biomedical Sciences at the University of California, Riverside currently has two tenure-track faculty positions open at the Assistant Professor level for individuals wishing to join a group of multidisciplinary researchers investigating the molecular mechanisms of human disease. Truly outstanding applicants at the senior level (Associate and Full Professors) will also be considered. We wish to recruit faculty studying basic cellular biology or molecular/genetic regulation in the context of cardiovascular disease, cancer or immunology [involving Golgi, ER membrane protein and lipid signaling pathways]; transport physiology; mechanism-based therapeutics; or employing animal models of human disease. Strengths within the Division include cardiovascular disease (LDL and shear stress), cancer (tumor promotion and UV carcinogenesis) and endocrine disease. We are also interested in recruiting interactive faculty employing modern molecular biological techniques to study gene regulation with micro array technology or other approaches. Highly competitive start-up funds and laboratory space will be available for successful applicants. All new faculty will be expected to obtain substantial extramural funding. (Senior faculty applicants would be expected to have significant current funding.)

The Division of Biomedical Sciences administers a joint accelerated 7-year B.S./M.D. program with the University of California at Los Angeles. The faculty teach the first two years of the medical school curriculum. Faculty in the Division are expected to maintain a vigorous research program and to contribute to medical and graduate teaching programs. The program is seeking investigators who can provide teaching expertise in major medical school courses in immunology, neurosciences, physiology, virology, gross anatomy and pathology. Initial review of applications will begin on receipt of applications and the positions will remain open until filled.

Interested investigators should submit an application including: a curriculum vitae, a description of research history and future directions, a history of the status of current funding, teaching interests and the names of three references. Please include your email address and fax number to: **Chairman, Search Committee, c/o S. Miller, Division of Biomedical Sciences, University of California, Riverside, California 92521-0121. FAX: (909) 787-5504, Email: craig.byus@ucr.edu. This ad and further information is available on our website: http://www.biomed.ucr.edu/news/current_positions.htm**

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

mayo

MAYO CLINIC
Postdoctoral Position

A postdoctoral fellowship position is available immediately in the laboratory of Dr. Richard Vile, a faculty member within the Molecular Medicine Program. The position involves the construction of targeted vector systems to express a highly potent class of cytotoxic and immunostimulatory genes known as the Fusogenic Membrane Glycoproteins (*Cancer Res.* (2000) **60:**1492; **60:**6396; *Gene Ther.* (2000) **19:**1656).

Expertise in any or all of molecular biology, virology, immunology and cell biology would be required. Salary will be determined by the successful candidate's experience. There is also an attractive benefit package. Mayo Foundation is a non-profit physician led clinical practice integrated with education and research in a unified multi-campus system.

Application including a CV, summary of past accomplishments, and the names of three referees should be sent to:

Dr. Richard G. Vile, PhD
Mayo Clinic Rochester
Molecular Medicine Program
Guggenheim 18
200 First ST SW
Rochester, MN 55905
Email: vile.richard@mayo.edu
See also: http://www.mayo.edu/research/mmp/

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

EDITOR

Turn the Page

To An Electrifying Career!

The Institute of Electrical and Electronics Engineers (IEEE), the world's largest professional technical organization with over 360,000 members worldwide, produces 30 percent of the world's published literature in electrical engineering, computers and control technology. We're proud to be the world's leading publisher in electrotechnology, and want to add you to our success story. IEEE Spectrum, the flagship magazine of the IEEE, is seeking the following top-flight editors to join our award winning staff in New York City:

SENIOR EDITOR

8+ years of demonstrated achievement in science/technology journalism is a plus. **Job Code E929B**

ASSOCIATE EDITOR, TECHNOLOGY

3+ years of demonstrated achievement in science/technology journalism is a plus. **Job Code E1175C**

Duties for both positions include writing and editing news and feature stories on the development and application of new technologies in areas such as telecommunications, computer hardware and software, automotive technology, nanotechnology, semiconductors, materials science, and biotechnology. An ability to appreciate and write about the business implications of these technologies is a plus, as is a degree in the physical sciences or engineering. Some travel required, as is a nose for news.

We offer a competitive salary commensurate with experience and a comprehensive benefits package including medical, dental, 401(k) plan with company match, tuition reimbursement, flexible spending accounts, company paid life insurance, and a business casual dress code. Please email your resume and salary requirements including the Job Code listed above to: careers@ieee.org (emailed resumes will receive priority review). **Or send to: Human Resources, Job Code ____, IEEE, 445 Hoes Lane, PO Box 1331, Piscataway, NJ 08855-1331; Fax 732-981-1046.** Equal Oppty Employer M/F/D/V.

IEEE

www.ieee.org/about/br

AxCell Biosciences Corporation is committed to charting the proteome comprehensively in order to be the premier provider of protein interaction databases for the pharmaceutical, biotechnology, veterinary, agrochemical and combinatorial chemistry industries.

Bioinformatics Scientist

AxCell Biosciences in offering a high-impact, high-profile position with excellent opportunity for advancement. Primary responsibilities include data mining (e.g. protein pathway and SNP analysis and new target identification; other responsibilities will include designing and/or evaluation of new algorithms, implementing new computational tools, and computer PCR primer design. The successful candidate will also work closely with wet-bench scientists in analyzing public domain and in-house protein DNA.

Candidates should have 1-2 years experience in Bioinformatics and possess an MS or Ph.D. in the biological sciences or computational field. The position requires knowledge of advanced data mining techniques (e.g. HMMs, PSI-BLAST, Smith-Waterman). The candidate must be proficient in PERL, C++, and/or JAVA and be experienced in UNIX. Experience with SQL and visually oriented data mining systems is highly desirable.

AxCell Biosciences offers a competitive salary, benefits package, stock options and tremendous growth potential. Submit resume and cover letter, including salary history, to:

AxCell Biosciences HR Dept., 826 Newtown-Yardley Road, Suite 100, Newtown, PA 18940, Fax 267-757-1301, or e-mail to hr@Axcellbio.com. View additional opportunities at www.axcellbio.com

AxCell BIOSCIENCES

GLOBAL OPPORTUNITIES

FACULTY POSITIONS FOR PROGRAM IN CHEMICAL BIOLOGY

The Weill Medical College of Cornell University is accepting applications from highly qualified candidates to develop a new program in Chemical Biology, which is being established in collaboration with the Memorial Sloan-Kettering Cancer Center, The Rockefeller University, and the Ithaca campus of Cornell. A generous donation has been received to permit the creation and development of this collaborative Program, which will build on the combined strengths of these three premier academic biomedical research institutions, located contiguously on the Upper East Side of Manhattan, along with the strengths in chemistry, engineering, and computer science at the Ithaca campus. This new joint program will enhance existing research initiatives in Chemical Biology by expanding the faculties and developing new resources and core facilities to further support the cutting edge research being conducted in the three institutions.

As part of the Cornell, Rockefeller and Sloan-Kettering Tri-Institutional Research initiative, the Weill Medical College of Cornell University is seeking to recruit faculty at all levels. We are especially interested in candidates using novel methods at the interface between chemistry and cell biology, bridging mechanistic studies of cell function with an emphasis on questions related to the pathophysiology of disease. Exceptional candidates in other related/appropriate fields will also be considered. Candidates for junior positions should demonstrate the potential for establishing a vigorous independent research program, and candidates for senior positions should have an outstanding record of productivity. Candidates should have Ph.D. or M.D. degrees.

Recruited faculty will receive generous start-up support. Although the primary appointment will be at Weill Medical College of Cornell University, recruited faculty will also receive academic appointments at Memorial Sloan-Kettering Cancer Center and The Rockefeller University. Candidates may participate in the Graduate School of Medical Sciences program which includes faculty from the Weill Medical College and the Sloan-Kettering Institute.

Applications should include a curriculum vitae, statement of research interests and three letters of recommendation. Applications should be sent to **Bernadette M. Mosellie, Chemical Biology Program Recruitment Committee (TRP), Box # 27, Weill Medical College of Cornell University, 1300 York Avenue, New York, NY 10021.**

EEO/AA/M/F/D/V

TWO FACULTY POSITIONS ENVIRONMENTAL TOXICOLOGY

Southern University at Baton Rouge (SUBR) invites applications for tenure track faculty positions in the newly created Ph.D. Program in Environmental Toxicology. The appointment rank will depend upon the qualifications of the applicant. SUBR, which is located on Scott's Bluff, overlooking the Mississippi River, about 70 miles northwest of New Orleans, offers a competitive salary, benefits, and a generous research start-up package.

Applicants must have:

1. **a Ph.D. in Toxicology or a closely related field,**
2. **post-doctoral research experience,**
3. **evidence of high research productivity in environmental toxicology,**
4. **a commitment to teaching graduate environmental toxicology courses and supervising graduate research.**

Candidates will be expected to establish an independent, extramurally funded research program in the environmental health sciences. Individuals who conduct research in any area of environmental toxicology using contemporary molecular approaches are encouraged to apply.

Applicants should include (1) a cover letter and curriculum vitae, (2) a statement of teaching interests, experience and philosophy, (3) a statement of research interests and goals for the next three years, and (4) names of at least three references. **Complete application packages must be received by April 16, 2001.**

Review of applications will begin immediately, and will continue until the positions are filled. The positions are available on July 1, 2001 or as soon as possible thereafter. Send applications to: **Dr. Gary Winston, Director, Environmental Toxicology Program, Southern University and A&M College, P. O. Box 9264, Baton Rouge, LA 70813, Telephone (225) 771-4303 or fax (225) 771-5350.**

Southern University, Baton Rouge is an Equal Opportunity/Equal Access Employer.

Roche

Pharmaceuticals

Postdoctoral position

Who we are

F. Hoffmann-La Roche Ltd, one of the world's leading pharmaceutical companies, has a longstanding reputation for successful and innovative drug development. Roche's Preclinical Safety Pharmacology department in Basel, Switzerland, is seeking a postdoctoral fellow in electrophysiology and molecular biology.

The position

We are looking for an enthusiastic, selfreliant postdoctoral scientist to join a project investigating new approaches to predicting arrhythmogenic safety/risk in humans using in vitro assays. In particular, the position involves using techniques in molecular biology, cellular electrophysiology, and ECG telemetry to characterise ion channels in rabbits and study the effects of cardiac disease on these channels.

Who you are

Applicants must have an MD, a DVM or a PhD in biological science, chemistry, physics or engineering. A strong background in molecular biology is a must. In addition, some experience with patch-clamp or voltage-clamp methode and/or cell preparations from cardiovascular tissues would be an advantage. Candidates must be interested in working in an interdisciplinary team and have excellent written and verbal English communication skills.

Who to contact

If your background fits the above profile and you are interested in a challenging postdoctoral position, please forward your application, with full supporting documentation, to:
F. Hoffmann-La Roche Ltd, Mr Ralph Gysin, PSPB, Building 52/210, P.O. Box, CH-4070 Basel, quoting reference: Gr4097.
For further details on the position contact: eric.ertel@roche.com.

Bioinformatics Director
Indiana Genomics Initiative
Indiana University School of Medicine

The Indiana University School of Medicine seeks an outstanding scientist who is a recognized leader in the field of bioinformatics to direct the Bioinformatics component of the Indiana Genomics Initiative. The scope of this $105 million initiative, which builds upon existing research strengths, can be seen at http://www.ingen.iu.edu/index.html. Building a world-class bioinformatics program is a key component of this initiative, and will be a cornerstone of research progress in the new century.

Candidates for this position should have the vision, collaborative skills and administrative ability necessary to build an outstanding interdisciplinary group. They should also possess excellent communication skills. The Director of Bioinformatics will play a significant role in the Indiana Genomics Initiative. Outstanding infrastructure support will be available, including high-performance computing and the Regenstrief Medical Records System database of 250 million clinical on-line results. There will also be opportunities to collaborate with leading researchers at the Indiana University School of Medicine, the new School of Informatics, and in other programs at Indiana University.

The successful candidate may be appointed at the Associate or Full Professor rank and must hold an M.D., Ph.D, or equivalent degree.

Please send curriculum vitae and references to **Howard J. Edenberg, Ph.D., Chair, Search and Screen Committee, Fesler Hall 318, 1120 South Drive, Indianapolis, Indiana 46202-5114**. Screening of applications will begin immediately and continue until the position is filled. *Indiana University is an AA/EOE, M/F/D.*

www.sugen.com

Drug Metabolism Scientist

Bioanalysis, Metabolics, Pharmacokinetics

At SUGEN, we foster a creative, energetic, and team-oriented atmosphere to develop small molecule drugs using renowned drug discovery techniques. Our continued success has created an excellent opportunity for an experienced Scientist to join our team.

Working with members of our Drug Metabolism, Toxicology, and Pharmacokinetic groups, you will help identify pathways of metabolism for preclinical and clinical drug candidates. In addition, you will also use hepatic cell lines to examine drug metabolism and drug induction. A solid understanding of drug metabolism, HPLC and in vitro metabolism techniques and demonstrated experience with cell culture techniques are essential. A Ph.D. in a field related to drug disposition and metabolism of xenobiotics along with 2-4 years of academic or industrial postdoctoral experience are expected.

We will reward you with an attractive compensation & benefits package that includes a 1st class pension plan, a generous profit sharing/bonus program, weekly happy hours (TGIF), and a fun, collaborative work environment that encourages creativity and achievement. Please forward resume & cover letter to: **SUGEN, Inc., HR Department, Attn: Job Code: DS50271SCIJR, 230 East Grand Avenue, South San Francisco, CA 94080; FAX: (650) 837-3301; email: jobs@sugen.com (MS Word docs only, please).** We also have openings for Scientists, Research Associates, Chemists, and I.T. Engineers. Please see our website for more details. EOE

Visit us at the 40th Annual Society of Toxicology Meeting (Moscone Convention Center in San Francisco) at the Placement Service on Tuesday, March 27th from 7:30am-12:00pm.

SUGEN

mayo

Mayo Clinic
Endocrinologist

The Division of Endocrinology, Metabolism and Nutrition at the Mayo Clinic, Rochester, Minnesota, is inviting applicants from a board certified or board-eligible endocrinologist with special expertise in lipid disorders. Individuals who are conducting an active research program in related areas are particularly encouraged to apply.

The Mayo Clinic provides excellent facilities for clinical, epidemiologic, and bench research. A comprehensive and competitive salary and benefits package is being offered. Individuals seeking a productive career in Endocrinology may submit a letter of interest and curriculum vitae to:

K. Sreekumaran Nair, M.D., Ph.D.
Chair, Search Committee
Professor of Medicine
Mayo Clinic
200 First Street, SW
Rochester, MN 55905
Phone: 507/255-6515, Fax: 507/255-4828,
E-mail: nair.sree@mayo.edu

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

HARVARD MEDICAL SCHOOL
and
MASSACHUSETTS GENERAL HOSPITAL

Junior Faculty & Postdoctoral Fellows
are sought with proven expertise in one of more areas of

Molecular Biology **Gene Therapy**
Generation of Transgenics/Knock-outs

The Edwin L. Steele Laboratory (MGH/HMS) is committed to improving the detection and treatment of cancer through a better understanding of tumor pathophysiology and transport barriers within tumors. We are actively recruiting **Junior Faculty** and **Post-Doctoral Fellows** to work in ***angiogenesis, metabolic micro-environment, cell mechanics, and transvascular, interstitial or cellular transport***. Faculty working in these areas include **Rakesh K. Jain, Brian Seed, Yves Boucher, Lance L. Munn, Dai Fukumura, Kevin Burton, and Emmanuelle di Tomaso.**

In addition, we are seeking several **Technicians** and **Research Assistants**. Visit our Web site (**http://steele.mgh.harvard.edu**) for more detailed information.

Individuals must have a Ph.D. and/or M.D., appropriate research experience, strong organizational, interpersonal, communication, and computer skills and be prepared to work in a dynamic team environment. Applicants should send a C.V., career statement and 3 letters of recommendation to: **Rakesh K. Jain, Steele Laboratory of Tumor Biology, Dept. of Radiation Oncology, Massachusetts General Hospital, Cox-7, 100 Blossom St., Boston, MA 02114.**

The MGH is an Affirmative Action/Equal Opportunity Employer. Applications from women and members of minority groups are encouraged.

Science

ASSOCIATE ONLINE EDITOR

Science is soliciting applications for an Associate Online Editor. This individual will work with a new editorial team developing editorial content for *Science* Online. Responsibilities include assisting in handling the review, editing, and selection of Technical Comments (published in *Science* Online), coauthoring a monthly electronic newsletter, and helping to develop *Science*'s Functional Genomics Web site and launch other editorial content in *Science* Online. We seek applicants with broad interests in science and electronic publishing and familiarity with communicating technical information in electronic formats. Applicants should have at least a B.S. degree in a scientific field and 5 years of experience in science, editing, and/or electronic publication. This position is for our Washington, DC, office.

To apply, please submit a cover letter describing your qualifications and salary requirements, résumé, and contact information for three or more references to:

Mr. Gregory Stokes
American Association for the Advancement of Science
Human Resources Department, Suite #100
1200 New York Avenue, NW
Washington, DC 20005

EOE/Nonsmoking work environment

Roche

Vitamins

Postdoctoral Positions

Who we are
The Vitamins and Fine Chemicals Division of F. Hoffmann-La Roche Ltd is a world-leading supplier of vitamins and other natural products to the feed, food, pharmaceutical and cosmetic industries. The Division discovers, develops, produces and sells ingredients that play important roles in the nutrition, maintenance of health and prevention of disease in humans and animals.

The positions
The department of Chemical Process Technology seeks several talented and enthusiastic PhD scientists to participate as postdoctoral coworkers in Discovery Research or Process Research. Each will design and practice syntheses and separation processes for natural products. Each scientist is associated with a lab leader for 1-2 years within a strongly team-oriented environment. He/she will work relatively independently to plan, conduct, interpret and summarize experimental work. The Discovery Scientists will synthesize and isolate natural products for biological evaluation and conduct studies for new separation methods. The Process Scientists will find and develop new synthetic and biotransformation processes. All positions are based in our state-of-the art laboratories in Kaiseraugst, Switzerland.

Who you are
You have a PhD degree in organic chemistry with experience in multistep organic synthesis and a strong interest in natural products chemistry. You are familiar with analytical methods, preparative separations and identification of products by spectroscopic methods. You are proficient with literature searching and data analysis software. You have excellent ability to communicate and collaborate. You have a good command of written and spoken scientific English and German. Direct laboratory experience with natural products isolation and identification, physical organic principles of molecular recognition, or biotransformations and enzymatic chemistry are considered advantages.

Who to contact
For further information on these positions, please contact: Discovery: Dr. David Burdick, Tel: 0041-61-687 03 95 or e-mail: david.burdick@roche.com. Process Research: Dr. Reinhard Karge, Tel: 0041-61-688 62 96 or e-mail: reinhard.karge@roche.com. Please send your application and CV to: F. Hoffmann-La Roche Ltd, Mrs Susanne Kenel, VH, Building 241/703, P.O. Box, CH-4070 Basel, quoting reference: Ke4116.

CHAIR
Department of Ophthalmology

The University of Wisconsin Medical School, Madison, invites applications and nominations for Chairperson of the Department of Ophthalmology and Visual Sciences to begin summer 2002. The Department ranks among the nation's finest clinical eye care programs, while also advancing vision research through extramurally supported programs and providing excellent educational opportunities to learners at all levels.

We seek a recognized leader with an outstanding academic background, strong clinical and research credentials, demonstrated commitment to education, experience in mentoring junior faculty in research and clinical tracks, and proven leadership and management skills. The Chair provides professional and administrative leadership of the highest quality to this distinguished department in programs of teaching, research, clinical service, and outreach. Qualificationss include M.D. or M.D./Ph.D. degree, Board certification in ophthalmology, evidence of sustained high-level leadership experience in an academic setting, and accomplishments as a clinical scholar and teacher that meet the standards for a tenured appointment at the University of Wisconsin–Madison.

Applications and nominations should be received by June 30, 2001, to ensure full consideration. Send a letter of application or nomination, curriculum vitae, and names and addresses of three references. Candidates will be informed before references are contacted. Address applications and nominations to:

Arnold E. Ruoho, Ph.D., Chair
Ophthalmology Chair
Search and Screen Committee
c/o Margie Martin
University of Wisconsin Medical School
Room 1225 Medical Sciences Center
1300 University Avenue
Madison, WI 53706
Telephone: 608-262-7705
E-mail: msmartin@facstaff.wisc.edu
UW Department of Ophthalmology website:
http://wieyemd.ophth.wisc.edu/

UW–Madison is an Equal Opportunity/Affirmative Action Employer. Unless confidentiality is requested in writing, information regarding the applicants must be released upon request. Finalists cannot be guaranteed confidentiality. Wisconsin Caregiver Law applies. The Medical School particularly encourages applications and nominations of women and members of underrepresented groups.

ASSISTANT SCIENTIST
The University of Wisconsin School of Pharmacy

The School of Pharmacy at the University of Wisconsin–Madison is looking for a director of its state-of-the-art NMR facility. The successful candidate will supervise and assist graduate students and faculty in the daily operation of one 500 MHz, one 400 MHz, and one 300 MHz spectrometer. Requirements for this position include a Ph.D. in NMR spectroscopy or related field (e.g., chemistry or chemical engineering) and the ability to implement and modify pulse programs and hardware to run cutting-edge experiments using spectral editing and multidimensional NMR. In addition, a strong background in computer networking and the Linux and UNIX operating systems is highly desired. Research collaborations with faculty members are encouraged. The salary will be highly competitive and based on experience and qualifications.

Applications must be received by May 1, 2001. Send a statement of how your background qualifies you for the above position; a statement of research and teaching interests; curriculum vitae; selected reprints; and the names, addresses, telephone numbers, and e-mail addresses of three references to: **Professor Ronald R. Burnette, NMR Director Search Committee, School of Pharmacy, University of Wisconsin–Madison, 425 North Charter Street, Madison, WI 53706.** *The University of Wisconsin–Madison is an Affirmative Action/Equal Opportunity Employer. Women and underrepresented minorities are encouraged to apply.*

POSITIONS OPEN

FACULTY POSITION
Plant Molecular Biology/Functional Genomics (Revised)

The Department of Molecular, Cell, and Developmental Biology of UCLA's College of Letters and Science is seeking to fill a tenure-track faculty position in the areas of plant molecular biology and/or plant functional genomics. We will consider candidates at the **ASSISTANT**, **ASSOCIATE**, or **FULL PROFESSOR** levels. Candidates are expected to maintain a strong research program and to actively engage in the College's educational activities. We offer competitive start-up funds and salaries and an outstanding collegial atmosphere conducive to independent as well as collaborative research. Send curriculum vitae, a description of your research program and future plans, and either three reference letters or the names of three references by May 1, 2001, to: **MCDB Faculty Search, Attention: Grace Angus, Department of MCD Biology, UCLA, 621 Charles E. Young Drive South, Box 951606, Los Angeles, CA 90095-1606.** Visit us at **website: http://www.mcdb.ucla.edu/.** Also see **website: http://www.mcdb.ucla.edu/html/pmbrg.html.**

ASSISTANT/ASSOCIATE PROFESSOR
Department of Pharmacology
University of Florida Shands Cancer Center

The Department of Pharmacology and Therapeutics in conjunction with the University of Florida Shands Cancer Center (UFSCC) invites applications for a tenure-track faculty position for individuals having a Ph.D. and/or M.D. degree. The successful candidate at the Assistant Professor level will be expected to develop an independent but interactive research program; at the Associate Professor level, candidates should have an established program. The individual will contribute to a new program in the area of therapeutic targeting and drug development as it relates to cancer and as such will promote discovery that integrates biology and chemistry. The program will be grounded in cancer genetics and proteomics as they relate to cell signaling. Candidates with a demonstrated interest in these general areas will be given the highest priority. A commitment to the education of professional and graduate students will also be expected. The position offers a competitive salary, excellent research facilities, and a generous start-up package. Additional information about the Department and UFSCC is available at **websites: www.med.ufl.edu/pharm** and **www.ufscc.ufl.edu**. Applicants should send their curriculum vitae, a description of research interests, and three letters of recommendation to: **Chair, Faculty Search Committee, Department of Pharmacology and Therapeutics, Box 100267, University of Florida College of Medicine, Gainesville, FL 32610-0267.** Application deadline is April 16, 2001, with start date on or after June 1, 2001. *The University of Florida is an Equal Opportunity Employer; minorities and women are encouraged to apply.*

The Vascular Biology Division of the Department of Medicine at the University of Vermont seeks a full-time faculty member at the **ASSISTANT PROFESSOR** level. The successful candidate will have demonstrated a commitment to basic research elucidating mechanisms of atherosclerosis. Candidates must hold a Ph.D. or M.D. degree. The new faculty will have substantial protected time to develop their research program. Additional responsibilities will include teaching and, if appropriate, clinical care of patients. Review of applications will begin immediately. Applications will be accepted until the position is filled. Address inquiries to: **David J. Schneider, M.D., Director, Vascular Biology, 208 South Park Drive, Colchester, VT 05446. FAX: 802-656-8969.** *UVM is an Affirmative Action/Equal Opportunity Employer. Women and people from diverse racial, ethnic, and cultural backgrounds are encouraged to apply.*

POSITIONS OPEN

Kutztown University enrolls approximately 8,200 students in graduate and undergraduate programs. The University is located in the borough of Kutztown in a charming rural setting but is within 20 minutes' driving time of the diverse metropolitan areas of Allentown/Bethlehem and Reading, Pennsylvania, and is within 60 minutes of the Philadelphia metropolitan area. The University is very interested in hiring employees who have had extensive experience with diverse populations, especially African American and Latino populations represented in these adjoining metropolitan areas.

TENURE-TRACK ASSISTANT PROFESSOR
Physical Sciences

Faculty position in biochemistry commencing August 2001. A Ph.D. in biochemistry is required along with a commitment to excellence in undergraduate teaching and research. The successful candidate will have a major impact on development of the biochemistry program. Primary responsibilities include the two-semester biochemistry sequence, organic chemistry laboratory, and assignments in other courses and supervision of undergraduate research. The teaching load consists of 24 contact hours per academic year. Successful interview and demonstration of teaching ability are required qualifications. Submit a letter of application, curriculum vitae, transcripts, a brief statement of teaching philosophy, research plans, and three current letters of recommendation to: **Biochemistry Search, Department of Physical Sciences, P.O. Box 6730, Kutztown University of Pennsylvania, Kutztown, PA 19530.** Review of applications will begin on February 9, 2001, and continue until position is filled.

TEMPORARY FULL-TIME ASSISTANT PROFESSOR
Biology

The Department of Biology is seeking to fill a full-time, one-year faculty position beginning in late August 2001 to teach introductory biology for nonmajors, a zoology laboratory, and anatomy and physiology II at an off-campus school of nursing. One year of college teaching experience is required. M.S. required; Ph.D. preferred. The position will be at the rank of **INSTRUCTOR** or Assistant Professor. Successful interview and demonstration of teaching ability are required qualifications. Applications will be considered after curriculum vitae, three letters of recommendation, copies of transcripts, and any other evidence of relevant qualifications have been received. Review of applications will begin on April 2, 2001, and will continue until the position is filled. Submit application materials to: **Dr. William Towne, Chair, Anatomy and Physiology Search, Department of Biology, Kutztown University, Kutztown, PA 19530.**

Kutztown University of Pennsylvania is an Affirmative Action/Equal Opportunity Employer and actively solicits applications from women and minority candidates. A member of Pennsylvania's State System of Higher Education.

HEAD, Department of Soil, Water, and Climate, University of Minnesota, St. Paul, Minnesota. Reports to Dean, College of Agricultural, Food, and Environmental Sciences. Earned Ph.D. in soil science, atmospheric science, or related field; demonstrated achievement in research and teaching or extension; minimum of eight years of professional experience; and ability to be appointed at the **FULL PROFESSOR** rank within the Department. Complete announcement at **website: http://www.coafes.umn.edu/hr/position/index.html.** Submit current curriculum vitae; a two- to three-page statement of interests; and names, e-mail addresses, and telephone numbers of five references to: **Dr. Larry J. Smith, Search Committee Chair, c/o College of Agricultural, Food, and Environmental Sciences, University of Minnesota, 277 Coffey Hall, 1420 Eckles Avenue, St. Paul, MN 55108-6074. Telephone: 218-281-8602; e-mail: lsmith@mail.crk.umn.edu.** Application deadline: May 15, 2001. *The University of Minnesota is an Equal Opportunity Educator and Employer.*

PATHOBIOLOGY: BLOOD-BORNE PATHOGENS
Department of Pathology and Laboratory Medicine
University of Ottawa

The Department of Pathology and Laboratory Medicine of the University of Ottawa invites applications for two **TENURE-TRACK POSITIONS** to support the development of a research unit exploring emerging blood- and tissue-borne pathogens and food-related issues on prions. The candidates will be Ph.D. and/or M.D./Ph.D. with expertise in viral pathology or prion diseases. They will preferably have significant experience or capacities through appropriate training in developing animal models to evaluate morphological changes and explore cellular and molecular physiopathologic mechanisms involved in diseases generated by emerging pathogens involved in transfusion and transplantation.

This new research unit will be located in the Medical School which houses the Biohazard and Animal Care facilities. Exciting research collaborations are possible throughout the University of Ottawa and its affiliated Research Centers as well as with the Centre for Infectious Diseases, Population Health, and other related units supported by Health Canada.

Salary and academic rank will be commensurate with experience and qualifications.

Qualified applicants should apply in writing including curriculum vitae with names of three references to:

Chairman, Department of Pathology and Laboratory Medicine
Faculty of Medicine
University of Ottawa
451 Smyth Road
Ottawa, Ontario K1H 8M5 Canada

The closing date for receipt of applications is May 31, 2001. *The University of Ottawa encourages applications from qualified women and men including persons with disabilities, members of visible minorities, and aboriginal people.*

ASSOCIATE IN SCIENCE INSTRUCTION
Environmental Science

The Program in Environmental Studies at Middlebury College is accepting applications for a three-year position as an **ASSOCIATE IN SCIENCE INSTRUCTION** in environmental science to begin July 16, 2001. The position involves developing and teaching laboratory/field exercises for the laboratory portion of an introductory environmental science course offered in both fall and spring semesters. Emphasis is on investigative, interdisciplinary laboratory/field experiences. We seek candidates with a strong background in the natural sciences, experience in teaching environmental science with an interdisciplinary perspective, and a Ph.D. or extensive teaching experience in laboratory settings. Applicants should submit a letter of application; curriculum vitae; statement of teaching interest; transcripts; and three letters of recommendation by April 16, 2001, to: **Chair, Environmental Science Search Committee, Program in Environmental Studies, Farrell House, Middlebury College, Middlebury, VT 05753.** *Middlebury College is an Equal Opportunity Employer, and it encourages applications from women and members of minority groups.*

MEDICAL ONCOLOGY FACULTY
University of Colorado Health Sciences Center
Denver, Colorado

ASSISTANT/ASSOCIATE PROFESSOR (M.D. or M.D./Ph.D.) to develop a basic/translational research program in breast cancer. Tenure-track position consists of 90% time for basic/translational research with 10% time in clinical/teaching activities. Two-page statement, curriculum vitae, four reference names to: **Dr. Anthony Elias, UCHSC, P.O. Box 6510, F–724, Aurora, CO 80010-0510. E-mail: anthony.elias@uchsc.edu.** Position open until filled. Review of applications begins March 15, 2001. *UCHSC is committed to Equal Employment Opportunity/Affirmative Action.*

POSITIONS OPEN

THE UNIVERSITY OF CHICAGO

FACULTY POSITION
The Ben May Institute for Cancer Research
The University of Chicago

The University of Chicago and The Ben May Institute for Cancer Research invite applications for a faculty position in mass spectrometry at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. The Ben May Institute for Cancer Research (BMICR) is a basic research unit that for 50 years has been committed to the study of basic mechanisms of cancer. The current faculty is committed to an interdisciplinary approach using established and newly emerging biochemical, genetic, molecular, and structural biological tools to attack basic problems in cancer biology. We are seeking an outstanding individual interested in diverse aspects of proteomics research. The successful recruit must have an extensive background in mass spectrometry and will be expected to organize and be responsible for a state-of-the-art proteomics center in which mass spectrometry is a central component. The center will facilitate the development and use of proteomics-based research of macromolecules at the University of Chicago. Candidates with demonstrated research accomplishments in mass spectrometry should submit curriculum vitae, a brief statement of research interest, and three letters of recommendation to: **Geoffrey Greene, Ph.D., Ben May Institute for Cancer Research, 5841 South Maryland Avenue, MC 6027, Chicago, IL 60637. E-mail: ggreene@uchicago.edu.** *The University of Chicago is an Affirmative Action/Equal Opportunity Employer.*

ENDOWED PROFESSOR
TUMOR ANGIOGENESIS
University of Missouri–Columbia

Candidates are sought for the Zalk professorship, a position dedicated to establishing a research program related to angiogenesis, its control, and its relationship to tumor biology. A research theme employing animal models would be welcomed. Primary appointment will be in biomedical sciences, College of Veterinary Medicine, with secondary appointment(s) selected to enhance interactions with other desired programs on campus. The University of Missouri–Columbia has a strength in cardiovascular sciences and has an initiative to become a comprehensive cancer center.

The successful candidate must possess a Ph.D., D.V.M., and/or M.D. degree or the equivalent; have demonstrated excellence in research achievement; be desirous of sustaining an active research and training program; and be willing to contribute to the development of the cancer initiative on campus.

Submit curriculum vitae and letter of interest to: **Dr. R. L. Terjung, E102 Veterinary Medical Building, College of Veterinary Medicine, University of Missouri, Columbia, MO 65211.** Credentials will be screened beginning April 15, 2001, and continue until the position is filled. *MU is an Equal Opportunity/Americans With Disabilities Act Institution.*

BEHAVIORAL NEUROSCIENCE FACULTY POSITION (tenure track): Research should employ molecular/genetic approaches to study sleep, stress, emotion, and/or learning and memory. Applicants using mouse genetic models are especially encouraged to apply. The successful applicant must have a strong interest in collaboration and have an established research program or outstanding potential to develop and maintain externally funded research. The ability to teach in an anatomy subdiscipline is desirable. The Division of Anatomy includes a growing group of Neuroscientists and hosts an active neuroscience focus group. Submit a statement of research and professional goals, curriculum vitae, and three letters of reference to: **Larry D. Sanford, Ph.D., Neuroscience Search Committee, Department of Pathology and Anatomy, Eastern Virginia Medical School, 700 Olney Road, Norfolk, VA 23501.** *Eastern Virginia Medical School is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR OF THE PRACTICE OF BIOLOGY

The Department of Biology at Duke University invites applications for a position in biology education at the Assistant Professor of the Practice level beginning July 2001. Duties associated with this position will include (1) managing the introductory biology program with responsibility for colecturing with a core of faculty that rotate into the course on a yearly basis and continuing to develop new learning tools and course materials; (2) running a graduate student teacher-training program for graduate students (primarily associated with their role as Teaching Assistants in introductory biology but also serving as a core for graduate teacher training in the Department); and (3) taking a leadership role in the development of pedagogy in science education in the Department, which would include seeking external funding for teaching innovation and publishing research in the scholarship of teaching and learning. This position is not tenure track but does allow for advancement to Associate and then Full Professor of the Practice and does include typical faculty privileges such as voting rights on most departmental and university issues. Initial appointment will be for three years. Candidates should have a Ph.D. in the biological sciences. Preference will be given to candidates with postdoctoral experience either in research or in biological education. Additionally, the successful candidate should have a demonstrated interest in science education reform, curriculum design, and pedagogical innovation. Applicants should send curriculum vitae, a statement outlining their interests in teaching and pedagogy, and arrange to have three letters of recommendation sent to: **Dr. Stephen Nowicki, Introductory Biology Search, Department of Biology, Box 90338, Duke University, Durham, NC 27708-0338.** Applications received by March 26, 2001, will be guaranteed full consideration. *Duke University is an Affirmative Action/Equal Opportunity Employer.*

COORDINATOR
DNA SEQUENCING

Large Scale Biology Corporation, a biotechnology company located in Vacaville, California, has an immediate opening for a DNA **SEQUENCING SPECIALIST**. Responsibilities include maintaining sequencing production workflow; maximizing the throughput and quality of our DNA sequencing facility; developing new methods; and establishing an automated process for large-scale, full-length cDNA sequencing and cloning. This position requires more than five years of experience in molecular biology and automated DNA sequencing (M.S./Ph.D. preferred) as well as excellent communication skills and the ability to thrive in a team environment.

Please send résumés with salary history to: **Large Scale Biology Corporation, Job Code: SEQ-SCI, 3333 Vaca Valley Parkway, Suite 1000, Vacaville, CA 95688. FAX: 707-455-1648; e-mail: careers@lsbc.com.** Please visit our **website: www.lsbc.com.** Due to our plant research environment, candidate must be a nonsmoker. Only those candidates under consideration will be contacted. No telephone calls, please. *Equal Opportunity Employer.*

UNIVERSITY OF FLORIDA

Seeks an **ASSISTANT/ASSOCIATE PROFESSOR/PROFESSOR** (tenure track) or a **CLINICAL ASSISTANT/CLINICAL ASSOCIATE PROFESSOR/CLINICAL PROFESSOR** (nontenure track) for the Department of Medicine, Division of Internal Medicine. This is a 1.00 full-time equivalent position with the responsibilities consisting of treating patients on an outpatient and inpatient basis. Teaching medical students and residents coinciding with the care of those patients. No research responsibilities. Salary and benefits commensurate with experience. Recruiting deadline: March 29, 2001. Anticipated starting date: July 1, 2001. Please reply with curriculum vitae to: **Richard Davidson, M.D., Associate Professor, P.O. Box 100277 JHMHC, Gainesville, FL 32610.** *An Equal Opportunity/Affirmative Action Employer.*

focus on CAREERS:

POSTDOCTORAL Opportunities I

Issue Date: 27 April 2001

Reserve space by: 10 April 2001

This special ad supplement includes advice from recruiters in both academia and government on **the viability of PhD candidates pursuing postdoctoral fellowships.**

For those that do, is it better to concentrate on specific disciplines or broaden their experience with a related subdiscipline?

Don't forget to place your ad in our follow-up supplement in *Science*'s 7 September issue. By running your ad in both issues you'll receive a **25% discount** off the second insertion.

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Christina Geiger
Phone: 202-326-6532
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FACULTY POSITIONS
Pancreas/Hepatic Stem Cell Biology
University of Minnesota

The Stem Cell Institute and Department of Laboratory Medicine and Pathology at the University of Minnesota invite applications for tenure-track positions. The Stem Cell Institute, recently established at the University of Minnesota Medical School, is dedicated to fundamental research in stem cell biology. To develop basic and future translational research efforts in multipotent stem cells such as ES, hematopoietic, neuronal, mesenchymal, hepatic, pancreas and others, the Institute will recruit Investigators who examine the genetic and phenotypic characteristics as well as differentiation and maturation potential of stem cells. This cross-departmental Institute will foster interactions between Investigators with different expertise/skills ranging from basic developmental biology, molecular biology, physiology, and biochemistry to biomedical engineering.

Successful candidates will be expected to develop a strong, extramurally funded research program in the field of pancreas or liver stem cell biology. Areas of exerptise include study of signals that regulate commitment and differentiation of endodermal, pancreas, or hepatic stem cells; functional genomics or proteomics of endodermal, pancreas, or hepatic stem cells; and developmental biology or cell biology of endodermal, pancreas, or hepatic stem cells. Salary and start-up funds will be competitive and commensurate with education and experience. Applications are accepted at the **ASSISTANT PROFESSOR** or (from outstanding Senior Scientists) at the **ASSOCIATE PROFESSOR** level. Candidates must have a Ph.D. and/or M.D. degree and *must be U.S. citizens or must be eligible to work at the University of Minnesota by date of hire.* Applicants should send current curriculum vitae, statement of research interests and intentions, and three letters of reference to:

Pancreas/Hepatic Stem Cell Search Committee
Attention: Lauri Andersen
(Assistant to Catherine Verfaillie, M.D.)
Stem Cell Institute
University of Minnesota
MMC 716
420 Delaware Street S.E.
Minneapolis, MN 55455

The University of Minnesota is an Equal Opportunity Employer.

The University of Southern California/Norris Comprehensive Cancer Center is seeking a faculty member with a Ph.D., M.D., or M.D.-Ph.D. in the Department of Molecular Microbiology/Immunology with interest in human tumor immunology. The prospective candidate will be appointed at the **ASSISTANT PROFESSOR** level, and it is expected that he/she would be capable of establishing an independent funded laboratory research program concentrating on translational tumor immunology. An outstanding start-up plan is available, as well as a highly competitive salary package with excellent laboratory space. Specific attraction is the opportunity to interact with ongoing, well-funded research programs in translational immunotherapy for melanoma and HPV disease and the molecular biology/genetic epidemiology of GI/GU cancers. Curricula vitae may be sent to: **Dr. Gunther Dennert, USC Cancer Center, 1441 Eastlake Avenue, Los Angeles, CA 90089-9176.** *USC is an Equal Opportunity Employer/Affirmative Action.*

The Biomathematics Program at North Carolina State University seeks applications for **PROGRAM DIRECTOR** and an **ENTRY-LEVEL POSITION**. Join core faculty in statistics plus affiliated faculty from mathematics and life sciences and adjuncts from RTP, a biotechnology-rich research park. Require a Ph.D. in a mathematical or biological science or related field and a research program in modeling biological systems. Inquiries to: **Tom Gerig; e-mail: bmasearch@stat.ncsu.edu.** For details, see **website: http://www.stat.ncsu.edu/admin/positions.htm#BMA.** *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

SAINT LOUIS UNIVERSITY HEALTH SCIENCES CENTER
Department of Pharmacological and Physiological Science

Saint Louis University, a Catholic Jesuit institution dedicated to education, research, and health care, is seeking applicants for a faculty position in the Department of Pharmacological and Physiological Sciences at Saint Louis University School of Medicine. The position is a tenure-track appointment at the **ASSISTANT PROFESSOR** or higher level depending on qualifications and experience. We offer an environment rich in senior-level scientific experience, start-up funds, laboratory space, and a record of highly successful and continuing extramural research funding.

Preference will be given but not restricted to individuals with demonstrated experience in the application of modern techniques in research of the nervous, endocrine, or cardiovascular systems. Interested persons should send curriculum vitae, three letters of reference, and a description of research interests and objectives to:

Dr. Thomas C. Westfall
Professor and William Beaumont Chair
Department of Pharmacological and Physiological Science
Saint Louis University School of Medicine
1402 South Grand Boulevard
St. Louis, MO 63104

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

ASSISTANT/ASSOCIATE FACULTY POSITION
University of Florida
College of Pharmacy
Department of Pharmacodynamics

The Department of Pharmacodynamics at the University of Florida College of Pharmacy is accepting applications from qualified candidates for a 12-month tenure-track position as Assistant or Associate Professor.

Applications are encouraged from individuals with research interests focused in neuropharmacology or neuroendocrinology and with potential for collaborations with researchers within the pharmacogenomics, gene therapy, cancer, aging, drug abuse, or toxicology centers within the McKnight Brain Institute or Health Sciences Center. Candidates should have a Ph.D. and at least two years of postdoctoral experience. Candidates should also demonstrate evidence of independent research funding and an interest in teaching pharmacology and training graduate students. Salary and rank will be commensurate with qualifications and experience.

Applicants should send curriculum vitae, statements of research plans and teaching interests, and names of three references by April 15, 2001, to: **Chair, Search Committee, Department of Pharmacodynamics, Box 100487, University of Florida, Gainesville, FL 32610.**

If applicants need special accommodations for this position, please contact **Committee Chair; Telephone: 352-392-3408.**

The University of Florida is an Equal Opportunity/Affirmative Action/Americans With Disabilities Act Employer.

RESEARCH ASSOCIATE position available immediately for an Enzymologist with a Ph.D. in chemistry or biochemistry to study the nature of protein binding and electron transfer between redox active membrane proteins such as cytochrome P450. Knowledge of enzyme kinetics preferred. Salary commensurate with experience. Send résumé to: **L. Waskell, University of Michigan, VAMC, Research Service 11R, Ann Arbor, MI 48105. E-mail: waskell@umich.edu.**

POSITIONS OPEN

MARINE CONSERVATION BIOLOGY

Duke University's Marine Laboratory and the Division of Coastal Systems Science and Policy of the Nicholas School of the Environment and Earth Sciences (NSEES) seek applications for a tenure-track **ASSISTANT** or **ASSOCIATE PROFESSOR** in marine conservation biology. We are specifically interested in candidates who conduct research on marine protected species. This position involves instruction and mentoring in the undergraduate, professional, and graduate degree programs as well as active participation in programs of the Marine Laboratory and the Division of Coastal Systems Science and Policy. Specifically, this faculty member would be responsible for teaching a senior/first-year graduate-level course in marine conservation biology and another course in his/her specialty. The person hired will also be expected to develop a strong extramurally funded research program and to establish linkages to appropriate university and external programs and agencies. The successful candidate will join an active faculty at the Duke University Marine Laboratory in Beaufort, North Carolina. To apply, please send curriculum vitae, statement of research and teaching interests, and three letters of reference to: **Dr. Larry B. Crowder, Chair, Marine Conservation Search Committee, Duke University NSEES Marine Laboratory, 135 Duke Marine Laboratory Road, Beaufort, NC 28516-9721 U.S.A.** The closing date for applications is April 15, 2001. Detailed information about the Nicholas School and the Marine Laboratory can be obtained at the following **websites: http://www.env.duke.edu; http://www.env.duke.edu/marinelab/marine.html.** *Duke University is an Equal Opportunity Employer. Women and minorities are encouraged to apply.*

THE BRADSTREET CHAIR
NORTHEASTERN UNIVERSITY

The Barnett Institute of Chemical and Biological Analysis in collaboration with the College of Arts and Sciences and Bouve College of Health Sciences at Northeastern University invites applications for the Raymond and Claire Bradstreet Chair in molecular biotechnology. This Endowed Chair was established to foster research growth at the interface of the chemical and biological sciences, and the incumbent will have the opportunity play a leading role in a University-wide initiative in biotechnology. As a result of this key effort, we are particularly interested in applicants whose research emphasis involves application of cutting-edge technology to address contemporary problems in chemical biology (e.g., genomics, proteomics, metabolomics). The incumbent is expected to have a strong research record commensurate with an appointment at the **FULL PROFESSOR** level in either the chemical or biological sciences. Applicants should send curriculum vitae and supply the names of at least three references to: **Dr. Graham Jones, Chair, Bradstreet Search, 341 Mugar Hall, Northeastern University, 360 Huntington Avenue, Boston, MA 02115.** *Northeastern University is an Affirmative Action/Title IX/Equal Opportunity Employer.*

ASSISTANT PROFESSOR
ANATOMY
Case Western Reserve University
School of Medicine

The Department of Anatomy, Case Western Reserve University, is seeking an individual with a Ph.D. and postdoctoral experience in research and teaching gross anatomy and neurological anatomy. Primary responsibility will be teaching neurological anatomy to graduate students and teaching gross anatomy to medical students and graduate students. Research area of interest must be basal forebrain. Appointment is effective July 1, 2001. Salary commensurate with experience.

Send credentials to: **Laila V. Boesinger, Department Administrator, Department of Anatomy, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106-4930.** *An Equal Opportunity/Affirmative Action Employer.*

NATIONAL CANCER INSTITUTE
Division of Basic Sciences

SYNTHETIC ORGANIC CHEMIST or MEDICINAL CHEMIST

An investigator, tenure-track position is available in the Laboratory of Medicinal Chemistry (LMCh), Division of Basic Sciences (DBS), National Cancer Institute (NCI), National Institutes of Health (NIH) now operating in its new location in Frederick, Maryland. A recent effort at the NCI to foster drug discovery has been directed to cultivate the spontaneous formation of "molecular target teams" between principal investigators in biology and principal investigators in synthetic organic/medicinal chemistry. The recent explosion of novel and promising molecular targets identified as useful for the potential treatment of cancer demands greater integration between chemistry and biology. As a member of a "molecular target team" of his or her choosing, the scientist occupying this position is expected to play an active role in the design and synthesis of small molecules that will serve as tools to query and perturb a biological system in order to understand both normal and pathologic processes in their natural setting. The LMCh has state-of-the art laboratory facilities that include access to two high field NMR instruments, three mass spectrometers and other supporting spectroscopies. In addition, the laboratory has an in-house molecular modeling mini-core facility with excellent expertise to support drug-design and database mining. Applicants should have a doctorate in synthetic organic chemistry or medicinal chemistry, and a record of publications demonstrating the ability to perform complex syntheses. The successful candidate should have strong communication skills to discuss scientific issues related to the formation of a "molecular target team" and to write scientific papers. Interested individuals should send a two-page statement of research interests and goals, a curriculum vitae and bibliography, a list of their five most significant publications, and three letters of reference to:

Mr. Tim Sakemiller
Building 578, Room 8
NCI-Frederick
P.O. Box B
Frederick, Maryland 21702-1201
phone (301) 846-5162
fax (301) 846-6053

NATIONAL CANCER INSTITUTE

Applications must be received or postmarked by April 20, 2001.

The National Cancer Institute is an Equal Opportunity Employer.

ASSISTANT DIRECTOR FOR FACULTY ACTIVITIES
OFFICE OF RESEARCH

The Dana-Farber Cancer Institute is a free-standing research institution and a teaching affiliate of the Harvard Medical School. It is a founding member of the Dana-Farber/Harvard Cancer Center, an NCI-designated Comprehensive Cancer Center.

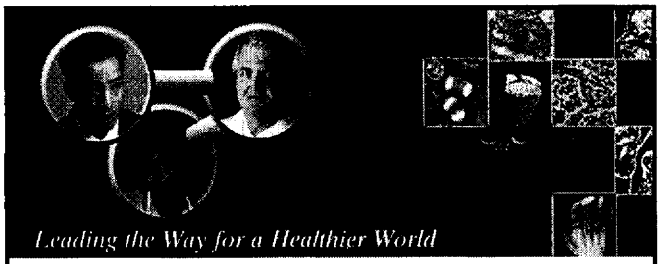
This position is responsible for assisting the Director for Research (DFR) in the areas of research faculty issues, specifically: 1) oversight and coordination of training and education programs for faculty in areas of responsible conduct of research, and compliance with applicable regulations, policies and procedures; 2) promoting open communication between the faculty and the Office of Research; 3) providing assistance as needed to the faculty for the conduct of research; and 4) assisting the DFR in the coordination and oversight of the research programs and infrastructure.

Advanced degree (Ph.D. level or equivalent) in a biological or physical science with some working experience in the administration of research required. Must be familiar with the process of obtaining sponsored research and have a broad understanding of the issues of ethical conduct of research. Advanced communication and management skills also required.

For other job opportunities, please visit our Web site at www.dfci.harvard.edu.

Interested candidates should forward a CV and letter of interest to: Dana-Farber Cancer Institute, Human Resources, 44 Binney Street, Boston, MA 02115, Fax: (617) 632-4411, E-mail: kirsten_tunney@dfci.harvard.edu. We are an Affirmative Action/Equal Opportunity Employer.

DANA-FARBER CANCER INSTITUTE



Lead the way! Become a leader by furthering your career and experience with one of the world's largest research-based companies. At Wyeth and Genetics Institute, both divisions of American Home Products, your knowledge will help lead the way into a healthier world. Join us in our **Radnor, PA** and **Cambridge, MA** facilities.

Wyeth (Radnor, PA)

Senior Research Scientist I, Functional Morphology

- Responsible for the development of in vitro and in vivo models for studying the mechanism of and therapeutic possibilities for estrogen action in CNS
- Provide expertise in the areas of Women's Health/CNS Research as a vital member of drug discovery project teams
- Ph.D./MD in Neuroscience, Molecular Biology or Cell Biology with a minimum of 2 years of postdoctoral CNS research and experience
- Familiarity with the functional organization of the brain and the use of molecular biological, cell culture and histological techniques, in addition to understanding light (confocal) microscopic evaluation of brain tissue

Genetics Institute (Cambridge, MA)

The Department of Immunology at Genetics Institute is currently recruiting for a growing Transplantation Biology Group in Cambridge. The focus of the group will be intervention in allograft rejection by protein and small molecule therapeutics. With the opening of a new 200,000 square foot research building in 2001, the department, with expertise in Autoimmunity, Costimulation, Gene Expression Monitoring and retroviral gene expression, will have state-of-the-art facilities to complement our scientific expertise.

Staff Scientist (Job Code: GEN00881626)

- Demonstrated ability to conduct independent research in an interactive, team oriented environment
- Ph.D. required, with background in molecular biology and the ability to perform gene expression monitoring in allograft rejection
- In vivo experience and knowledge of the NOD diabetes model
- Experience in islet transplantation is a plus

Staff Scientist (Job Code: GEN00881541)

- Provide expertise in the area of therapeutic interventions of protein and small molecule immunomodulatory agents in the prevention of allograft rejection
- Ph.D. in Immunology or a related scientific discipline
- Experience in solid organ murine allograft models as well as in vitro experience with allogeneic and antigen-specific cell activation highly desirable
- Strong background with methods of gene expression monitoring, immunohistochemistry, or in situ hybridization is advantageous

Wyeth and Genetics Institute offer competitive compensation and benefits programs including stock options, child-care subsidies, flex-time, business casual work environment, educational assistance and professional development programs. Please forward your resume with salary requirements to: **Wyeth, Reference OPSCI, P.O. Box 7886, Philadelphia, PA 19101-7886. Fax to: (610) 989-4854. E-mail: jobs@RAMAIL1.wyeth.com**

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For more information, please visit our website at: **www.wyethjobs.com** or **www.genetics.com**

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GENETICS INSTITUTE

University at Buffalo
State University of New York

ASSISTANT/ASSOCIATE PROFESSOR
Department of Pharmaceutical Sciences
School of Pharmacy and Pharmaceutical Sciences

Applications are invited for a tenure-track position at the **ASSISTANT/ASSOCIATE PROFESSOR** level in the Department of Pharmaceutical Sciences, University at Buffalo, State University of New York (**website: http://pharmaceutics.buffalo.edu**). Candidates are sought having potential for research excellence in emerging areas such as pharmacogenomics and pharmacodynamics or established areas such as pharmaceutical analysis or drug transport/metabolism/delivery.

A Ph.D. in the pharmaceutical or pharmacological sciences (or related fields) and postdoctoral experience are desirable. The successful candidate is expected to develop an independent and extramurally funded research program and participate in teaching courses at the undergraduate and graduate levels.

The position is available immediately and review of applications will continue until the position is filled. Applicants should submit a letter of application, curriculum vitae, the names and addresses of three references, and a statement of research interests to: **Robert M. Straubinger, Ph.D., Search Committee Chair, Department of Pharmaceutical Sciences, Cooke Hall, State University of New York at Buffalo, Buffalo, NY 14260. Telephone: 716-645-2855, Extension 243; FAX: 716-645-3693; e-mail: rms@buffalo.edu**. *The University at Buffalo is an Equal Opportunity Employer/Recruiter.*

UNDERGRADUATE PROGRAM OFFICER
Organization for Tropical Studies (OTS)

The Organization for Tropical Studies (OTS) is currently recruiting an Undergraduate Program Officer to work closely with the Academic Director and other OTS staff in the management and administration of the undergraduate education portfolio of OTS and provide leadership in student recruitment, selection, and the marketing of new and existing OTS undergraduate programs. These include summer and semester courses in Costa Rica and possible expansion to other countries. Position requires a minimum of a Master's degree in environmental science, resource management, environmental education, or related field; excellent verbal and written communication skills; and Spanish language capability. Previous experience with study abroad programs a plus. Salary and benefits are competitive; initial term of appointment is two years. To apply, send résumé or curriculum vitae with cover letter and names, addresses, and e-mail addresses of two references to: **Academic Director, Organization for Tropical Studies, Box 90630, Durham, NC 27708-0630**. Application deadline: April 5, 2001.

UNIVERSITY OF FLORIDA

Seeks an **ASSISTANT/ASSOCIATE PROFESSOR/PROFESSOR** (tenure track) and a **CLINICAL ASSISTANT/CLINICAL ASSOCIATE PROFESSOR/CLINICAL PROFESSOR** (nontenure track) for the Department of Medicine, Division of Rheumatology. M.D. or D.O. degree and Board certified or Board eligible in rheumatology. The responsibilities will include developing a clinical trials program or the willingness to develop an expertise in this area through additional training. This position will spend approximately 30 to 40 percent of time/effort in clinical trials and 50 to 60 percent in the outpatient clinics and 10 percent attending on the inpatient service. Salary and benefits commensurate with experience. Recruiting deadline: March 29, 2001. Anticipated starting date: July 1, 2001. Please reply with curriculum vitae to: **N. L. Edwards, Professor, Department of Medicine, Box 100277 JHMHC, Gainesville, FL 32610.**

An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSOR
DEPARTMENT OF PHYSIOLOGY
University of Florida College of Medicine

The Department of Physiology invites outstanding applicants for a tenure-track faculty position at the Assistant Professor level. The successful candidate will be expected to develop a strong, extramurally supported, independent research program in cellular and molecular physiology and complement current departmental strengths. These strengths include gene therapy for cardiovascular and other metabolic diseases, neuroendocrinology, developmental physiology, membrane physiology, and signal transduction. The Department is ranked high nationally in research dollars/faculty and excels in teaching professional and graduate students. The college has a Mammalian Genetics Center, Hypertension and Gene Therapy Centers, and Brain Institute. Salary is negotiable based on qualifications and experience. An excellent start-up package includes initial support from the Howard Hughes Medical Institute Biomedical Research Support Program for Medical Schools grant to the College of Medicine. Applicants must have a Ph.D., M.D., or equivalent, postdoctoral experience, and an excellent record of research productivity and quality. Submit curriculum vitae including a statement of research plans and names of at least three references to: **Mohan K. Raizada, Ph.D., Professor of Physiology and Chair of Search Committee, P.O. Box 100274, University of Florida College of Medicine, Gainesville, FL 32610-0274**. Application deadline: March 31, 2001. Anticipated start date: October 1, 2001. *The University of Florida is an Equal Employment Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

ASSISTANT/ASSOCIATE PROFESSOR
(MOLECULAR BIOLOGIST)
Center for Medical Education
Ball State University
Muncie, Indiana

The Muncie Center for Medical Education, a regional center for the Indiana University School of Medicine located on the Ball State University campus, invites applications for a tenure-track fiscal year position at the level of Assistant or Associate Professor available July 1, 2001. Responsibilities include establishing an independent research program in molecular biology and teaching molecular biology to first-year medical students. Minimum qualifications: Ph.D. in molecular biology; postdoctoral experience. Start-up funds are available. Send letter of application listing current research activities, curriculum vitae, and the names and telephone numbers of three references to: **Dr. Douglas A. Triplett, Director, Center for Medical Education, Ball State University, Muncie, IN 47306. Website: www.bsu.edu**. Original transcripts will be required before interview. Applications must be postmarked by April 2, 2001.

Ball State University is an Equal Opportunity/Affirmative Action Employer and is strongly and actively committed to diversity within its community.

ANATOMY TEACHING FACULTY POSITION

The Department of Cell Biology and Anatomy at Louisiana State University Health Sciences Center, New Orleans, seeks an experienced **TEACHER** for its human gross anatomy program. Candidates should have a Ph.D. or M.D. and be capable of instruction in the schools of medicine, dentistry, allied health, and nursing. Appointment is a nontenure-track term appointment that may be renewed annually. Collaborative research and scholarship opportunities are available. An interest in computer-aided and problem-based learning and other teaching innovations is desired. Send curriculum vitae, a description of teaching experience, and names of three references to: **Department Head, Cell Biology and Anatomy, LSUHSC, 1901 Perdido Street, New Orleans, LA 70112**. *LSUHSC is an Equal Employment Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

CHAIRPERSON
Department of Mathematics
Morehouse College

Morehouse College invites applications for the position of Chairperson of the Department of Mathematics, which begins July 31, 2001. Applicants should hold a Doctorate in mathematics and have appropriate research and teaching experience to qualify for a tenured appointment at either the **ASSOCIATE** or **FULL PROFESSOR** level. As an undergraduate institution, Morehouse values excellent teaching and mentoring. The successful applicant should demonstrate a capacity to assume a leadership role in the Department and will be expected to maintain an active research program and to have a strong commitment to enhancing the research capacity of the Department. For more information on the Department and College, visit our **website: http://www.Morehouse.edu**. Please submit full curriculum vitae and graduate school transcript by April 11, 2001, and request that three letters of reference be forwarded by the same date to:

J. K. Haynes, Ph.D.
Dean, Division of Science and Mathematics
Morehouse College
830 Westview Drive, S.W.
Atlanta, GA 30314

Morehouse College is an Equal Opportunity Employer.

ASSISTANT PROFESSOR/ASSOCIATE PROFESSOR. The Hormel Institute, a biomedical research center of the University of Minnesota, invites applications for a faculty appointment at the level of Assistant or Associate Professor. Qualifications: Candidates must demonstrate the ability to establish an independent, extramurally funded research program of biomedical relevance that will complement ongoing programs. Preference will be given to applicants with a strong background in molecular/cell biology and a successful research record in one of the following areas: signal transduction, gene expression, functional genomics, molecular carcinogenesis, chemoprevention, or the regulation of membrane-dependent cellular processes. A Ph.D. (or equivalent) degree and two to three years of postdoctoral experience are required. Individuals with additional research experience and with excellent organizational, supervisory, and communication skills are desired. Please submit curriculum vitae, a research plan, and the names of three references no later than May 15, 2001 (or until the position is filled), to: **Dr. Zigang Dong, The Hormel Institute, 801 16th Avenue N.E., Austin, MN 55912. E-mail: ZigangDong@smig.net**. *The University of Minnesota is committed to the policy that all persons shall have Equal Access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance, status, veteran status, or sexual orientation.*

FACULTY
SCIENCE DIVISION

Mercy College of Northwest Ohio invites applications for a faculty position within the Science Division to assume a **FULL-TIME POSITION** for the academic year and a part-time adjunct commitment this summer. The hours include evening as well as daytime commitments. Teaching includes immunology, organic and biochemistry, and other related areas. The position requires a Ph.D. in a related field. Excellence in teaching is expected both in the classroom and in mentoring students outside the classroom. The applicant must be committed to Catholic education.

Submit letter of application; curriculum vitae; and three letters of reference by April 28, 2001, to the attention of: **Dr. B. A. Stoos, Director of Science, Mercy College of Northwest Ohio, 2221 Madison Avenue, Toledo, OH 43624-1132. FAX: 419-251-1570**. *Mercy College of Northwest Ohio is a Member of Mercy Health Partners and is an Equal Opportunity Employer.*

NATIONAL CANCER INSTITUTE
Center for Cancer Research

Reducing the burden of cancer through exploration, discovery, and translation

Research areas include:

Animal Models
Bioinformatics
Carcinogenesis
Cell Cycle
Clinical Trials
Cytokines
Developmental Biology
Experimental Therapeutics
Gene Therapy
HIV
Immunology
Molecular Epidemiology
Molecular Genetics
Organic Chemistry
Receptors
Signal Transduction
Structural Biology
Tumor Biology
Vaccine Development
Viral Oncology

For Career Opportunities, visit

http://ccr.nci.nih.gov/employment

Italian National Research Council

Vacancy announcement for Director positions in 28 New Institutes

The Italian National research Council is undergoing a reform process, since the legislative decree 19/99, leading to substantial change in its structure and organization. The former 315 Research Units (Institutes and Centers) are being combined to give birth to the New CNR Institutes. In this framework, CNR announces vacancies for Director positions in 28 New Institutes. Applicants should be both accomplished scholars in fundamental or applied research relevant to the research fields of the Institute and skillful and entrepreneurial managers of research groups, and demonstrate capability to lead innovative research. The Director is asked for a full-time commitment. ***Deadline for application is May 7th, 2001.*** For more detailed information on application, reference should be made to the original vacancy notice issued by CNR on the website: www.cnr.it under the web directory News. For any question please send an e-mail to das.rep3@dcas.cnr.it or contact Franca Rossi +39-6-49932408.

The New Institutes are:

1) Istituto per la protezione delle piante - Firenze - Activity: Study of the biological mechanisms of the complex relation between plants and factors of biotic and abiotic stress factors; Development of forecasting models in respect of the environment

2) Istituto di ricerca sulla popolazione e le politiche sociali - Roma - Activity: Relation between the population trends and the social and economic development; Social and political dynamics in welfare systems; Social mutation, and diffusion of knowledge and information technologies.

3) Istituto di ricerca per la protezione idrogeologica - Perugia - Activity: Development of interdisciplinary studies aimed at the improvement of geological, geomorphological, hydrogeological, and geothermal knowledge in the evolutionary dynamics of drainage basins, plains, and coasts, aimed at defining the nature, the effects and the methods of flood and land sliding risk mitigation; Scientific and technical advice on geological and hydraulic risk (floods, mass movement, pollution and/or depletion of underground water and soil protection); Higher education training also after-university on land planning, soil protection, environmental services, and social security.

4) Istituto di geoscienze e georisorse – Pisa - Activity: Comprehension of geological processes involving the earth system, with particular attention to the relation among its different parts; Identification of natural resources for a sustainable development; Execution of analyses instrumental to the mitigation of risks of geological nature; Forecasting and mitigation of the effects of global changes.

5) Istituto di virologia vegetale – Torino - Activity: Characterization of virus and virus-like plant pathogens and associated diseases. Diagnosis of plant viruses, Improvement of the sanitary status of plant propagation material. Investigation and testing of sustainable methods to control plant virus and virus-like diseases.

6) Istituto di scienze delle produzioni alimentari - Bari - Activity: Production of food with improved organoleptic and nutritional properties; Development of innovative processes devoted to the achievement of primary and secondary products in agro-industry; Identification of risk factors for food safety and development of safer products by monitoring and elimination of potentially toxic components.

7) Istituto di fotonica e nanotecnologie - Roma - Activity: Study, development, scientific and technological applications of: Devices for photonics, optoelectronics and electronics; Laser sources; New materials and characterization techniques; Nanotechnologies, micro- and nano-fabrications.

8) Istituto di chimica biomolecolare - Napoli - Activity: Isolation, chemical synthesis, molecular characterization, structure-activity relation, and molecular design of biologically active molecules; Innovative chemical methods in synthesis, biosinthesis, purification, and characterization of biologically active molecules; Chemistry, biochemistry, and microbiology in application development of biomasses and compounds significant in biotechnology and ecology.

9) Istituto genetica vegetale - Napoli - Activity: Processes limiting growth, development, and productivity; Interaction of plant with the physical and biological environment; Analysis of plant genome; Product quality; New agricultural products for food, pharmaceutical, and chemical industries.

10) Istituto di metodologie per l'analisi ambientale - Potenza - Activity: Earth observations from ground, aircraft, and satellite aimed at the study of atmosphere, hydrosphere, lithosphere, and their interactions in meteo-climatic applications and risk forecasting, prevention, and mitigation; Chemical-physical characterization of soil and subsoil; Monitoring, anthropic pressure, and management of agricultural and natural resources; Development of new environmental monitoring tecnhiques based on the integration of chemical-physical, biological, and geological methods in situ and in remore sensing; Integrated methodologies for environmental planning.

11) Istituto di biochimica delle proteine - Napoli - Activity: Study of the relation between structure and function of proteins and enzymes; Isolation, characterization, and biotechnological application of proteins and enzymes of extremophiles.

12) Istituto per l'endocrinologia e l'oncologia sperimentale "G. Salvatore" – Napoli - Activity: Cellular and molecular mechanisms underlying growth, neoplastic differentiation and transformation; Cellular and molecular mechanisms of the expression of specific genes essential to differentiation and growth of thyroid cells; Cellular and molecular mechanisms of genetic diseases and/or acquired diseases involved in the regulation of endocrine functions or of metabolism; Creation of animal models to study cancer and endocrine pathologies.

13) Istituto sull'inquinamento atmosferico - Monterotondo scalo (Roma) - Activity: Global changes and atmospheric pollution; Development of laboratory and platform analytical methods; Polar environments; Pollutant cycles, industrial and urban pollution; Ecological systems and biodiversity.

14) Istituto di neuroscienze – Pisa - Activity: Molecular, cellular, physiological, and pharmacological study of the nervous and neuromuscular systems; Study of biomedically relevant membrane phenomena; Studies on biological basis of mental processes and brain aging.

15) Istituto di ricerca sulle acque – Roma - Activity: Management of water resources; Water quality; Water treatment.

16) Istituto per lo studio degli ecosistemi – Pallanza - Activity: Limnology and ecophysiology of aquatic ecosystems; Ecology of population; Evolutionary biology, biodiversity, and nature conservation; Macro- and micropollutants; Integrated biological control; Soil ecosystem, control and recovery of soil quality.

17) Istituto dei materiali per l'elettronica ed il magnetismo - Parma - Activity: Science of materials for electronic, optic, magnetic, and sensor applications; Semiconductors in massive form of films and dimensionally reduced systems; High-critical-temperature superconductors; Metal alloys and magnetic oxides; Surfaces; Modellization and calculus.

18) Istituto di scienze e tecnologie della cognizione – Roma - Activity: Cognitive, communicative, and linguistic processes: acquisition, processing, deficit, multimodality, communication technologies; Theory, analysis and technology of spoken language and linguistic variability; Cognitive development, learning and socialization in children and in non-human primates; Artificial intelligence, artificial life, artificial societies; Knowledge technologies, neural networks, autonomous robotics; Social cognition: behaviours, motivations, transmission, and cultural processes; Decision and cooperation technologies; Environment quality, health, and society: prevention, education, integration, handicap, technologies design.

19) Istituto di fisica applicata "Nello Carrara" – Florence - Activity: Methodologies and applications of electromagnetic waves, optics, quantum electronics, and interactions between radiation and matter; Structure of matter; Applied spectroscopy; Optoelectronics and photonics; Laser and applications; Electromagnetism; Sensors and optical observation methods; Information processing.

20) - Istituto di biostruttura e bioimmagini – Napoli - Activity: Biochemical technologies and biostructures; Biochemical technologies oriented at diagnostics by images; Technologies of diagnostics by images and radiotherapy; Diagnostics by images and radiotherapy.

21) Istituto di fisica dello spazio interplanetario – Roma - Activity: Plasma physics in space(from sun to solar wind, from magnetospheres to ionosphere); Studies on planets and minor bodies of the Solar System, on nascent star systems, cosmic rays and gravitational phenomena; Design and realization of the relevant original instruments.

22) Istituto per le tecnologie della costruzione - San Giuliano Milanese (MI) - Activity: New or taditional materials used in an innovative way and new technological solutions; New methodologies and instruments for the evaluation of component performance, systems, and constructions; Evaluation and improvement of the use, safety and quality of built environment and infrastructures; Air conditioning, heating, refrigeration and technological plants in building; Innovative computer methods and instruments supporting the design, execution and management phases of building; Systems for management and diffusion of scientific and technical information in the field; Research activity and services, with high scientific and tecnological content, together with, national and international, organizations and techno-scientific networks.

23) Istituto di scienze neurologiche – Cosenza - Activity: Clinical physiopathology and therapy of nervous systems diseases with particular attention to hereditary neurological diseases; Clinical, neurophisiological, and neuropatological diagnosis of nervous system diseases; Diagnostics by images and nuclear medicine applied to the diagnosis and the study of the nervous system diseases; Genetics, biochemistry, immunology, and pharmacology applied to the diagnosis and the study of the nervous system diseases; Development of biotechnologies to study the diseases of the nervous system.

24) Istituto opera del vocabolario italiano – Florence - Activity: Elaboration of an historical dictionary of the Italian language; Editing of a dictionary of the ancient Italian language (text of the Italian language from the origin) and the relevant electronic databank; Editing of the historical dictionary up to present days; Continual updating of the dictionary, keeping pace with phylological and linguistic developments; Production of computer procedures for lexicography and linguistics.

25) Istituto per il lessico intellettuale europeo e storia delle idee – Roma - Activity: History of intellectual terminology in the European languages and in its relationships with the Mediterranean Greek, Latin, Hebraic and Arab tradition; History of ideas and linguistic signs, from classical times to the modern era; Production of critical texts and studies, lexical examinations, agreements and lexicons; Development of computing methodologies for textual analyses.

26) Istituto di cristallografia – Bari - Activity: Development of new methodologies and crystallographic instruments; Development of methods of crystallographic calculus; Study of substances with antiviral and anticancer properties; Crystallographic study of proteins, nucleic acids.

27) Istituto di biologia e patologia molecolari – Roma - Activity: Study of the structural basis of the function of proteins and nucleic acids, with particular reference to the regulation of the gene expression in plant and animal organisms, enzymatic activities, respiratory proteins and immune response molecules; Analysis of effects on human health, and characterization of molecular mechanisms of evolution and of differentiation in biological systems.

28) Istituto di metodologie chimiche – Roma - Activity: Synthesis of new materials for stationary phases in chromatography or in electrocromatography or as catalysers; Synthesis of molecules of chemical-biological interest; New methodologies of chromatographic, electrophoietic radiochemical and NMR synthesis and analyses.

Medicines for Malaria Venture

The Medicines for Malaria Venture (MMV) has been established as a partnership between public sector agencies, philanthropic foundations and industry for the sustainable discovery and development of new antimalarial drugs at prices affordable to developing countries. In this regard it works closely with the Roll Back Malaria Partnership that has been initiated through the World Health Organisation to help develop sustainable solutions for the reduction of the global malaria disease burden. For further information see **www.mmv.org.**

MMV is established in Geneva as an independent not for profit Swiss Foundation. It has an entrepreneurial, start-up mentality and has established a novel paradigm through which it selects, monitors and manages its R&D portfolio, which is currently undergoing expansion. We are looking for three talented individuals to join the scientific staff of this venture and make an impact on the success of its scientific programmes.

Commitment to the ideals embodied in MMV and a willingness to work as part of a small, integrated professional team, together with demonstrated scientific and technical excellence, are key attributes for these positions.

MMV is an equal opportunity employer. Terms and conditions will reflect the experience of the successful applicants, who should have a PhD or MD in a relevant discipline and work experience related to malaria and/or drug R&D. Prior international experience will be an asset for these Geneva-based positions.

Scientific Officer (logistic and scientific support) 1 post

The successful candidate will provide logistical, administrative and scientific support to the Chief Scientific Officer and other scientific staff and assist with the overall management of MMV's research portfolio. The successful candidate will need to develop a strong interest in, and understanding of, the science underlying MMV projects and the process of drug R&D. She/he must also be able to analyse issues and communicate these effectively to others, both internally and externally.

Good writing ability, experience of assisting in the planning of projects, use of project planning programme software and experience in the establishment of science databases would be an advantage.

Scientific Officer (project manager) 2 posts

The successful candidates will take on responsibility for monitoring and, where appropriate, managing several specific MMV drug discovery and development projects. Experience in drug discovery and development, in either the public or private sectors, and an understanding of regulatory processes are essential prerequisites for these positions.

The holders of these positions will be expected to fully participate in the further development of MMV's scientific strategy, to help identify potential projects for future funding and to help identify industrial partners in both developed and developing countries for the development, manufacture and commercialisation of antimalarials.

Those interested in applying are requested to submit a letter of application and CV to the address below by **April 6th**.

Mrs. Diana Cotran, Human Resources
Medicines for Malaria Venture
International Centre Cointrin, Box 1826
CH-1215 Geneva 15, Switzerland
Tel: +41-22-799-4060; Fax: +41-22-799-4061, E-mail: cotrand@mmv.org

MMV gratefully recognises the funding and support it has received from the following organisations: Bill and Melinda Gates Foundation, ExxonMobil Corporation, Global Forum for Health Research, International Federation of Pharmaceutical Manufacturers Associations, Rockefeller Foundation, Roll Back Malaria Partnership, Swiss Agency for Development and Cooperation, The Netherlands Minister for Development Cooperation, United Kingdom Department for International Development, World Bank, World Health Organisation.

The Chinese Academy of Sciences
with support of the
MAX-PLANCK-GESELLSCHAFT
intends to establish
INDEPENDENT RESEARCH GROUPS
at the Kunming Institute of Zoology
for Promising Young Chinese Scientists

Applications are invited for positions as Research Group Leaders from young scientists in China or abroad who have achieved a degree of international recognition in their field, preferably in

- Evolution - Evolution of Genomes
- Mammalian - Primate - Embryonic Development
- Primate Gene Function
- Biodiversity - Conservation Biology - Ecology - Social Systems

The successful applicants will be expected to conduct fully independent, original and dynamic research programs.

The positions offer full scientific and economic independence and are limited to a maximum of five years. They are paid according to Chinese regulations; in addition, special social benefits, a supplement in foreign currency and travel grants are offered. The groups will have modern laboratory facilities and funding for scientific and technical co-workers. The operating expenses include funds in foreign currency.

Applications, including a tabular curriculum vitae, a list of publications with reprints of three selected papers, a description of major scientific achievements and a summary of future research plans, should be submitted in English by April 15, 2001, to:

Prof. Uli Schwarz
Direktor der Abteilung Biochemie
Max-Planck-Institute für Entwicklungsbiologie
Spemannstrasse 35/11, D 72076 Tübingen/Germany
E-mail: uli.schwarz@tuebingen.mpg.de
Fax: +49 7071 601-447

A group of finalists will be informed soon and invited to present their projects in Kunming in the middle of May.

Better world. Better careers.

We're the Novartis Group. As a global leader in the healthcare industry, we don't just wish people well. We're committed to improving lives through our aggressive pipeline of innovative products. We can also do some great things for your career. Join us as we continue to enhance the world of pharmaceutical discovery and consumer health. Currently we seek to fill the following positions at our **NJ headquarters:**

Sr. Scientist/Pharmacology

We are seeking a highly qualified life scientist with demonstrated evidence of creativity and the desire and ability to contribute to innovative drug discovery programs within the Pharmacology Unit of Metabolic and Cardiovascular Diseases Research. With particular focus on type 2 diabetes, the successful candidate will be expected to possess the relevant in vivo and ex vivo pharmacology skills necessary to validate animal models of diabetes, to study the mechanism of action of new candidate drug molecules, and to interpret and translate the therapeutic relevance of findings in a multidisciplinary program team setting. The capacity to develop viable concepts for new programs and lead them from preliminary evaluation to full implementation will be the primary consideration for appointment. You will be expected to manage a laboratory and to work effectively in a multidisciplinary matrix-based environment.

A Ph.D. in one of the life sciences, with expertise in in vivo physiology or pharmacology, and at least 4 years postdoctoral experience will be required. Additionally, a demonstrated record of creativity and achievement, evidenced by a high quality publication record and peer-group recognition, and a strong desire to apply this background to contribute to drug discovery for metabolic diseases (particularly type 2 diabetes) are also important. **Requisition #8828AD.**

LabHead, Fellow or Below

The Pharmacology Unit of Metabolic and Cardiovascular Diseases Research seeks a highly qualified life scientist to contribute to innovative drug discovery programs in the metabolic diseases area, with particular focus on type 2 diabetes and obesity. Candidates will be expected to possess the relevant in vivo and ex vivo pharmacology skills necessary to validate animal models of diabetes, to effectively profile new candidate drug molecules, and to interpret and translate the therapeutic relevance of findings in a multidisciplinary program team setting.

Requirements include a Ph.D. in one of the life sciences, with expertise in in vivo physiology or pharmacology, and at least 4 years postdoctoral experience from a cutting-edge environment in an area relevant to metabolic or endocrine diseases. Must possess a demonstrated record of creativity and achievement evidenced by a high-quality publication record and peer-group recognition. **Requisition #8826AD.**

Sr. Scientist II/III

You will head the Analytical NMR Laboratory and be responsible for supervising the work of MA/BA/BS level NMR personnel. You will be expected to apply a variety of state-of-the-art NMR based techniques to support drug discovery and development efforts, maintain a high standard of both core and open access NMR services.

Requirements include a Ph.D. in Chemistry or a related field and extensive hands-on experience using NMR for structure elucidation of small molecules. Must possess a broad knowledge of NMR techniques, such as LC-NMR, MAS-NMR and high-throughput NMR and their application. Experience with computer aided structure elucidation tools such as ACD is desirable. **Requisition #8803AD.**

Scientist I-III

The successful candidate will perform NMR structure determination using 1-2D NMR techniques, use LC/NMR and MAS NMR to solve structural problems and maintain NMR instrumentation.

Requirements include a B.S. degree or equivalent in Chemistry or related field, minimum 2 years experience and working knowledge of Bruker NMR instrumentation. Knowledge of multidimensional NMR is important; UNIX helpful. **Requisition #8279AD.**

At Novartis Pharmaceuticals Corporation, we offer excellent compensation and benefits programs that reflect our position as an industry leader. The programs include medical, dental, vision, legal and financial planning services, life insurance, 401(k) as well as leadership development initiatives. Find out how fulfilling your career can be.

Please email your resume as a 'Microsoft Word' attachment to: rd@recruitmentsolutions.com. Include in your email message the following information:

1. In the subject area and in the main copy of your email, reference the requisition # (4 digit req #) for sorting purposes.
2. In a brief note or cover letter, indicate where core competencies align with requisition.

As an alternate methods of submission, you may fax your resume and cover letter to: 800-343-8850. If you would like to know more about openings available at Novartis, please visit our website at: **www.joinnovartis.com.** We are equal opportunity employers M/F/D/V

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Use your career to fight cancer.

ImmunoGen, Inc. is developing a new generation of chemotherapeutics with our Tumor-Activated Prodrug (TAP). This exciting new technology will allow us to target tumors with more precision than ever before. We're seeking talented individuals who are motivated to continue the fight against cancer in a flexible creative environment.

Research Scientists — Biochemists

Become part of a growing team engaged in the development of novel antibody-based cancer therapeutics based on ImmunoGen's proprietary TAP technology. Applicants should possess a Ph.D. in Biochemistry or a related field and 1 to 4 years' experience in protein purification, protein characterization methods, cell-based assays, protein conjugation, and analytical methods. Chemistry is a plus.

Research Scientist — Analytical Biochemist

Position available for an experienced analytical biochemist to play a central role in the development of a collaborative research group to focus on the characterization of antibody-based therapeutics. A Ph.D. in Biochemistry or a related field and expertise in analytical biochemical approaches such as peptide mapping, HPLC and LC/MS are required. Protein modification and conjugation are preferred.

Research Associate — Cell Biology

Join our cell biology group to conduct research on the targeted delivery of drugs for the treatment of cancer. Responsibilities will include performing cell-based assays and ELISAs. Applicants should possess a B.S. or M.S. in Biology or a related field and experience in mammalian cell culture.

Research Scientist — Chemistry

We are seeking an innovative scientist with modern synthetic organic/medicinal chemistry experience to design and synthesize highly bioactive compounds leading to potent, target-selective anti-tumor drugs. Applicants should have an interest in rational drug design and bio-organic chemistry, strong analytical skills, and the ability to work with a multidisciplinary team. A Ph.D. in Chemistry is required. Post-doctoral experience is desirable.

Research Associate — Chemistry

Synthesize highly bioactive compounds that will lead to potent, target-selective antitumor drugs. Applicant should possess a B.S or M.S. in Chemistry, strong analytical skills, a desire to learn, and the ability to work with a multidisciplinary team. Experience in modern organic synthesis is preferred.

Manufacturing Technician

(NORWOOD FACILITY) We need a highly motivated individual to operate production equipment used to manufacture clinical products in a clean room environment. Responsibilities include dispensing of raw materials and inventory control. Applicant should possess an A.S. degree with 4 years' experience in a manufacturing environment and familiarity with regulatory requirements for completing documentation and with Good Manufacturing Practices. Attention to detail, good written and communication skills are essential.

ImmunoGen, Inc. offers an excellent salary and benefits package including 100% paid health and dental insurance, 401(k) and tuition assistance. Please send a detailed resume to: **The Human Resources Department, ImmunoGen, Inc., 128 Sidney Street, Cambridge, MA 02139: Fax: (617) 995-2510; E-mail: resumes@imgn.com**
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IMMUNOGEN, INC.

www.immunogen.com

Postdoctoral Positions

Structural Biology
Comprehensive Functional Genomics

The Biosciences Division is developing a highly interdisciplinary and collaborative environment for genome-scale analysis of protein structure and function with a focus on structural genomics and proteomics and its use in developing a comprehensive understanding of the function of gene products and their contribution to cell function.

Post-doctoral positions are presently available with research groups in the Biosciences Division to undertake cross-disciplinary research. Appropriate skills and interests include macromolecular crystallography, molecular biology including vector design and site-specific mutagenesis, phage display technology, robotics, recombinant protein production and purification, enzymology, biophysics, molecular modeling and bioinformatics. Successful applicants will have expertise in at least one of the above areas. These positions will address new opportunities in high-throughput issues in basic bioscience and biomedical research. Candidate must have received a Ph.D. not more than three years prior to the start date of the appointment.

Argonne is a multi-program laboratory operated by the University of Chicago for the U. S. Department of Energy. Argonne houses the Advanced Photon Source, a center for Structural Biology and X-ray Biophysics. It is located in suburban Chicago, 20 miles west of the Loop.

For further information, please contact Lee Makowski (lmakowski@anl.gov).

Interested candidates should submit curriculum vitae, at least three reference names and addresses, and a short statement of their qualifications to **Susan Walker, Box BIO-301312-43, Argonne National Laboratory, 9700 S. Cass Avenue, Argonne, IL 60439.**

To submit your resume, please visit our website at **http://www.hr.anl.gov/employment.htm.** Argonne is an equal opportunity employer.

ARGONNE NATIONAL LABORATORY · UNIVERSITY OF CHICAGO

Infinite Discoveries Unparalleled Opportunities

The pharmaceutical market is rapidly changing; evolving and maturing everyday as new ways and tools are being developed to improve the quality of human life. Ideas, outstanding performance and the growth and caring of our people are at the core of our value system. Our future is in the hands of the individuals who make up our company.

Cell Biologist-Functional Genomics

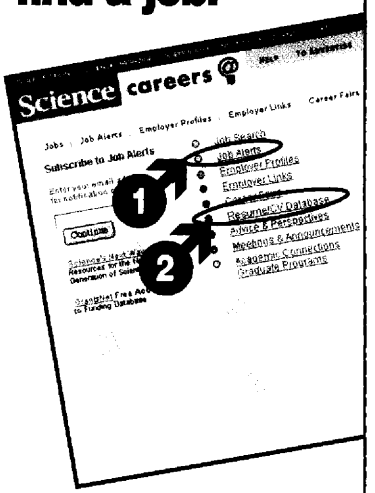
A candidate is sought with broad experience in cell biology and cell based readouts. Responsibilities will include generation and characterization of cell lines and cell based assay development and implementation with the goal of evaluating biological function. The ability to envision and develop functional readouts in novel, information-rich ways is highly desirable. The successful candidate will be capable of interacting with a wide range of scientists in a team oriented environment and have excellent communication skills. Familiarity with protein chemistry and molecular biology is a plus. A Ph.D. degree in Cell Biology or related field with 3+ years of work experience is required.

Our commitment to our employees includes an excellent salary and a comprehensive benefits package. To apply, please forward your cover letter and resume to: **DuPont Pharmaceutical Company, Attn. Human Resources - 14549, Experimental Station, E400/2413, Route 141 and Henry Clay Rd., Wilmington, DE 19880; e-mail: AMSresume@dupontpharma.com.** An Equal Opportunity Employer.

DUPONT

DuPont Pharmaceuticals Company

The *Science* Careers website has 2 great ways to help you find a job.



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This database allows you to post your credentials for access by hiring managers from leading universities and biopharma organizations.

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Science
Discover your future

THE CENTER FOR CHILDHOOD COMMUNICATION
The Children's Hospital of Philadelphia

FACULTY POSITION: The Center for Childhood Communication at The Children's Hospital of Philadelphia is seeking a faculty member with research emphases in either (1) molecular genetics of hearing disorders or (2) molecular/cellular approaches to ear development or regeneration. Requirements include a Ph.D. degree with at least two years of postdoctoral experience and a strong record of peer-reviewed publications. Candidates will be expected to develop a vigorous, independent research program that will lead to external funding.

This position offers excellent laboratory facilities, ample start-up funds, and the opportunity for collaboration with an outstanding group of Neuroscientists at The Children's Hospital of Philadelphia and The University of Pennsylvania. Academic rank will be commensurate with credentials and experience.

POSTDOCTORAL POSITION: A Postdoctoral Fellowship is available to study the cellular and molecular mechanisms that regulate the formation and remodeling of neural connections to developing mammalian auditory hair cells. Approaches include neural tract tracing techniques, immunostaining, *in situ* hybridization histochemistry, organ culture, and time lapse videomicroscopy. The position is NIH funded and the start time is flexible.

Candidates interested in either position should submit their curriculum vitae and names of three references to: **Stephen M. Echteler, Ph.D., The Children's Hospital of Philadelphia, Division of Otolaryngology, Abramson Building 510D, 34th Street and Civic Center Boulevard, Philadelphia, PA 19104-4318**.

The Children's Hospital of Philadelphia and the University of Pennsylvania School of Medicine are Equal Opportunity/Affirmative Action Employers. Women and minorities are encouraged to apply.

MOLECULAR BIOLOGIST

Advanced BioScience Laboratories, located in Kensington, Maryland, seeks a **RESEARCH SCIENTIST** to join a team of Investigators working on the development of HIV vaccines and other retroviral applications. The successful candidate will conduct cloning of viral and cellular genes, study expression of proteins in recombinant expression systems, and develop molecular-based technologies for therapeutic or diagnostic applications. Candidates must have a Ph.D. with two or more years of postdoctoral experience in gene cloning and protein expression, good molecular biology skills, and the ability to work as a team member. ABL is a biomedical research facility with a long history of innovative research in human and animal retrovirology, supported by government and commercial contracts. Interested candidates should submit a cover letter and curriculum vitae to: **Michele M. Grace, Human Resource Department, 5510 Nicholson Lane, Kensington, MD 20850. FAX: 301-816-5254; e-mail: mgrace@ablinc.com.**

ABL is an Equal Opportunity Employer. Minority/Female/Disabled/Veteran.

RESEARCH POSITIONS
Columbia University College of Physicians and Surgeons

Several positions available in an integrated program to study kidney morphogenesis and epithelial cell biology. Ph.D. with background in molecular biology and/or cell biology required.

Please send or e-mail curriculum vitae and names of references to: **Dr. Jonathan Barasch, Columbia University, 630 West 168th Street, Box 84, New York, NY 10032. E-mail: jmb4@columbia.edu.**

Columbia University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSOR
SCHOOL OF BIOLOGICAL SCIENCES
University of Missouri–Kansas City

Applications are invited for the position of Assistant Professor in biological sciences. Candidates whose research interests include comparative genetics, proteomics, functional genomics, molecular evolution, or any area of structural or molecular biology using extensive computational skills are encouraged to apply. The successful candidate should have postdoctoral experience and will be encouraged to develop a strong, extramurally funded research program alone or in collaboration with existing faculty. The School of Biological Sciences and School of Interdisciplinary Computing and Engineering at the University of Missouri–Kansas City are committed to establishing productive interactions, and successful candidates also will be expected to develop collaborations with colleagues in computer sciences.

Candidates should submit curriculum vitae, a brief description of research plans, and arrange for three letters of recommendation to be sent to: **Dr. Marino Martinez-Carrion, Dean, Attention: BioInfo, School of Biological Sciences, University of Missouri–Kansas City, 5007 Rockhill Road, Kansas City, MO 64110**.

Applications will be evaluated beginning April 13, 2001, and are welcome until the position is filled.

UMKC is an Equal Opportunity Institution.

DIRECTOR OF ENVIRONMENTAL POLICY INITIATIVES
Organization for Tropical Studies (OTS)

This position directs the expansion of the OTS Environmental Policy Program to include additional courses in Central America and new courses in Brazil and Spanish-speaking South America and plays a leadership role in the integration and consolidation of the existing OTS Environmental Policy program. The successful candidate must combine initiative and the ability to work independently with a willingness to function as part of the dynamic and expanding Education Program of OTS. Substantial experience in developing nations and the design and implementation of new initiatives is required. Professional experience with evaluation, monitoring, and the principles of adaptive management is strongly preferred. The ideal candidate will have at least a Master's degree in the biological sciences or an environmental policy discipline. Spanish language fluency or the willingness to acquire such is required. The position reports to the OTS Senior Fellow of Environmental Policy and the OTS Academic Director. This position is for an initial term of two years and may continue beyond that time based on availability of funding. The position is based in Washington, D.C., or Durham, North Carolina, with frequent travel to Latin America expected. Salary will be competitive and commensurate with experience. To apply, send résumé or curriculum vitae with cover letter and names, addresses, and e-mail addresses of two references to: **Academic Director, Organization for Tropical Studies, Box 90630, Durham, NC 27708-0630.** Application deadline: March 27, 2001.

WETLAND ECOLOGIST

We seek a tenure-track **ASSISTANT PROFESSOR** with research expertise in wetland ecology. Candidate must establish an independently funded graduate research program, teach undergraduate courses and a graduate course in wetland ecology, and work with students in the service arena (detailed description at **website: mrubio@tamu.edu**). Submit application letter, brief statements of research and teaching interests, curriculum vitae, transcripts, three reprints, and three letters of recommendation by 16 April 2001 to: **Dr. Markus J. Peterson, Search Committee Chair, Department of Wildlife and Fisheries Sciences, Texas A&M University, 2258 TAMU, College Station, TX 77843-2258. Telephone: 979-847-9334.** *The Texas A&M University System is an Equal Opportunity Employer and encourages applications from women and minorities.*

POSITIONS OPEN

ars Agricultural Research Service

RESEARCH PLANT PATHOLOGIST
VIROLOGY/ENTOMOLOGY

The United States Department of Agriculture, Agricultural Research Service, North Atlantic Area, Foreign Disease-Weed Science Research Unit in Fort Detrick, Maryland, is seeking a permanent Research Plant Pathologist, GS–12/13, to conduct research on important new and emerging virus diseases of stone fruits, with particular emphasis on plum pox (Sharka). Salary range: $53,156 to $82,180 per annum. Applicants must have qualifying education and/or experience that provides (1) knowledge of plant pathology (virology); (2) knowledge of entomology as applied to insect culture and plant virus transmission; (3) skill in general plant virology techniques including purification, biochemical and molecular characterization, and epidemiology; (4) skill in molecular cloning, sequencing, and analytical methods; (5) skill in planning, designing, and conducting research and publishing results in peer-reviewed journals; and (6) ability to work independently within a team approach. *United States citizenship is required.* For research program information, contact: **Dr. Vern Damsteegt; Telephone: 301-619-7307**. To address specific qualification requirements and application instructions, applicants must request a copy of Vacancy Announcement ARS–X1E–1245. Applications must be postmarked by April 9, 2001. *U.S. Department of Agriculture, ARS, is an Equal Opportunity Provider and Employer.*

FACULTY POSITIONS
Anatomical Sciences and Neurobiology

The Department is seeking to fill two positions at the level of **ASSISTANT PROFESSOR**. The successful candidates will have a Ph.D. or M.D./Ph.D. and independently funded research programs. The positions require participation in one of the team-taught medical/dental courses: histology, neuroscience, or gross anatomy. Participation in the graduate training program is expected. Priority will be given to applicants with research interests that complement existing programs (for more information, see **website: http://www.louisville.edu/medschool/anatomy**). Substantial start-up packages and competitive salaries available. Opportunity for joint appointments with clinical departments. To apply, send curriculum vitae, statement of research and career goals, list of current or proposed funding, and at least four letters of reference to:

Chair of the Search Committee
Department of Anatomical Sciences and Neurobiology
University of Louisville School of Medicine
Louisville, KY 40292
E-mail: sghodg01@gwise.louisville.edu

Applications accepted until the positions are filled; interviews ongoing. *The University of Louisville is an Equal Opportunity Employer. Women and minorities are encouraged to apply.*

The Renal-Electrolyte Division of the University of Pittsburgh has immediate openings for Physician-Scientists seeking tenure-track appointments at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Applicants with interests in cell or developmental biology, cell signaling, epithelial physiology, genetics, or transplant immunology are encouraged to apply. Academic appointment and salary are dependent upon qualifications and experience. Applicants should be Board certified/Board eligible in nephrology. Please send curriculum vitae and three letters of reference to: **Thomas Kleyman, M.D., Professor and Chief, Renal-Electrolyte Division, University of Pittsburgh, A919 Scaife Hall, 3550 Terrace Street, Pittsburgh, PA 15213**. *The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.*

The BURNHAM INSTITUTE

NONPROFIT RESEARCH
CANCER • AGING • NEUROSCIENCE

Faculty, Visiting Professors and Postdoctoral Positions for New Neurosciences & Aging Center in La Jolla, California

The Burnham Institute is expanding research programs in Neurosciences and Aging and is inviting outstanding individuals for faculty and postdoctoral positions. A new 45,000 sq ft building has been erected for this purpose. Areas of expansion include (i) neurodegenerative diseases (including mouse, *Drosophila* and *C. elegans* models), (ii) molecular, cellular, developmental neurosciences, and (iii) stem cell technology/neural transplantation. Successful faculty candidates may be at any level in their career, must hold an outstanding record of research accomplishments, and are expected to develop an independent and innovative research program supported by extramural funding.

The Burnham Institute is committed to scientific excellence with special emphasis on the fields of apoptosis, cell adhesion, gene regulation, signal transduction, genomic instability/oncogenesis, glycobiology, neuroscience, aging, neurodegenerative disease research, structural biology and bioinformatics. We offer an exciting interdisciplinary and interactive research environment that is supported by excellent core facilities, extensive collaborations/resources, and access to graduate and medical student researchers.

Applicants with outstanding levels of accomplishment should apply by sending a CV, statement of research plans, summary of accomplishments, publication list and letters from at least three references to:

Neuroscience Positions
c/o Human Resources at the Burnham Institute
Stuart A. Lipton, M.D., Ph.D., Director
Del E. Webb Center for Neuroscience and Aging Research
The Burnham Institute
10901 North Torrey Pines Road
La Jolla, CA 92037
www.burnham.org

The Burnham Institute is an EOE

New England Biolabs, a world leader in the manufacture and supply of reagents for Molecular and Cell Biology, has the following position available.

NEW ENGLAND BioLabs Inc.

Postdoctoral Fellow

A Postdoctoral Fellowship for a RECENT Ph.D. is available to study the mechanism of protein splicing and its control. Experience with protein engineering, genetics and molecular biology are preferred. Among the projects under study are the control of protein splicing *in vivo* and *in vitro* using genetic selection systems and the study of variations in the protein splicing mechanism.

Send a resume with address and phone numbers of three references to: **Dr. Francine Perler.**

New England Biolabs, Inc.
32 Tozer Road
Beverly, MA 01915

An Equal Opportunity Employer

UNITED ARAB EMIRATES UNIVERSITY (UAEU)
FACULTY OF MEDICINE AND HEALTH SCIENCES

Professor & Chair of Biochemistry

The UAEU Faculty of Medicine & Health Sciences (recognized by the UK General Medical Council) is a developing and progressive medical school located in a purpose built state-of-the-art facility in Al Ain. Founded in 1986, our mission is to "*train medical graduates and postgraduates of internationally recognized quality, specifically attuned to the needs and aspirations of the UAE and its culture, achieved by excellence in teaching, research and service directed to the needs of the community*". English is the medium of instruction.

The appointee will demonstrate strong leadership and communication skills, energy, and flexibility to insure the efficient operation and continued development of the Department and the Faculty in collaboration with the other 14 Chairs and educational, research, and clinical management of the FMHS and the University.

Applicants for this exciting opportunity should hold a PhD or MD by research and have senior experiences in development/implementation/evaluation of educational and research programs for medical students and graduate students in basic medical sciences and be familiar with USMLE and MCCEE.

The UAE is an open and tolerant society and clearly one of the most attractive places to live and work in the Middle East. Faculty receive tax-free salary, generous leave, and support for accomodation/furnishings, annual air fares, educational assistance for up to three children, and international conferences.

Further information may be obtained from the web site at **http://www.fmhs.uaeu.ac.ae** or by contacting Miss Egbal at egbal@uaeu.ac.ae

Applications should include full CV and publication list, names/addresses/fax of five referees, and comprehensive letter indicating depth of interest, experience, and suitability for the post sent to:

The Dean (c/o Mr C. P. Nair)
Faculty of Medicine and Health Sciences
United Arab Emirates University
P O Box 17666, Al Ain, United Arab Emirates
Fax No. +971-3-7672001

Closing date for applications is 30 days from the date of publication.

The Department of Biochemistry and Molecular Biology at the University of Arkansas for Medical Sciences at Little Rock announces the availability of a full-time, tenure-track position at the level of **ASSISTANT** or **ASSOCIATE PROFESSOR** starting in the fall of 2001. The successful candidate will have a strong record of research accomplishments and will be expected to develop an active and funded research program in dynamics and structure of proteins, proteomics, and/or biophysics. For appointment at the Associate Professor level, the candidate would be expected to have a funded grant. In addition to developing a successful research program, the appointee will also be involved in teaching graduate and medical students in areas of protein structure, structural characterization, and proteomics. This faculty position is funded with a full and competitive salary from the state of Arkansas and with an excellent benefits package.

To apply, please submit current curriculum vitae, a description of current and future research interests, and the names and addresses of three persons who can be contacted for letters of recommendation. Submit applications to: **Alan D. Elbein, Chair, Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, 4301 West Markham Street, Mail Slot 516, Little Rock, AK 72205. E-mail: funderburklynda@uams.edu**. Review of applicants will begin on April 1, 2001, and will continue until the position is filled. More information about the Department can be obtained at **website: http://www.uams.edu/biochem/biochem.htm**.

The University of Arkansas for Medical Sciences is an Equal Opportunity/Affirmative Action Employer committed to excellence through diversity.

INSECT-HOST INTERACTIONS

The Department of Entomology, University of Arkansas, invites applications for a 12-month, tenure-track **ASSISTANT PROFESSOR** of entomology with expertise in insect-host interactions. The successful applicant will develop an active, externally funded research program that complements existing strengths in integrated pest management, biological control, systematics, insect pathology, and medical and veterinary entomology. The appointee will be expected to teach a course in insect physiology and contribute to undergraduate and graduate teaching programs. A Ph.D. in entomology or related discipline is required with research experience in insect-host interactions. Applications will be accepted until May 1, 2001, or until a suitable candidate is found. To apply, send a statement describing research and teaching interests; a detailed curriculum vitae; reprint of pertinent publications; official copy of undergraduate and graduate transcripts; and names, addresses, telephone numbers, and e-mail addresses of three references to: **D. T. Johnson, Chair, c/o Janet Funk, Department of Entomology, 321 Agriculture Building, University of Arkansas, Fayetteville, AR 72701**. Information about the Department can be found at **website: http://www.uark.edu/depts/entomolo/index.html**.

The University of Arkansas is an Affirmative Action/Equal Opportunity Employer. Applicants must have proof of legal authority to work in the United States at the time of hire. The Department is especially interested in applications from qualified candidates who would contribute to racial, ethnic, and gender

RESEARCH TECHNICIAN PLANT MOLECULAR BIOLOGY

The U.S. Department of Agriculture Natural Products Research Unit is seeking highly motivated applicants interested in participating in basic research projects involving the characterization and genetic engineering of plant secondary metabolic pathways. We offer an opportunity to work in a dynamic new state-of-the-art research facility in a multidisciplinary effort involving university and government researchers. For application procedures, please contact: **Scott Baerson, Telephone: 662-915-7965; e-mail: sbaerson@olemiss.edu**. Salary and benefits are competitive and commensurate with experience. *ARS is an Equal Opportunity Employer. U.S. citizenship is required.diversity.*

POSITIONS OPEN

SCIENTIST, POSTDOCTORAL, AND RESEARCH ASSOCIATE OPPORTUNITIES in the areas of automated enzyme assay development, enzyme biochemistry, diversity generation, fungal gene expression, microarray analysis of gene expression, proteomic analysis, fermentation, and mammalian molecular biology.

Novozymes Biotech, Inc., located in Davis, California, is a wholly owned research and development subsidiary of Novozymes A/S based in Bagsvaerd, Denmark. Novozymes A/S is the world's largest discoverer, manufacturer, and marketer of industrial enzymes. If you are looking for a challenging career opportunity, please visit our **website: http://www.novozymesbiotech.com** for more details.

Novozymes Biotech, Inc. is an Affirmative Action/Equal Opportunity Employer.

STAFF FELLOW POSITION
Division of Viral Products
Office of Vaccines Research and Review
Center for Biologics Evaluation and Research
Food and Drug Administration

The Laboratory of Pediatric and Respiratory Viral Diseases, located on the NIH campus, is searching for a candidate to fill a Staff Fellow position. The Laboratory is actively engaged in research on the neuropathogenesis of live attenuated vaccine and wildtype strains of mumps and influenza viruses, immune responses to RSW, and host interactions with rubella virus and rotavirus at the molecular level. Candidate should have a Ph.D., M.D., or M.D.-Ph.D. and research experience in molecular virology, cell biology, or neurobiology. The Staff Fellow will conduct novel research using pediatric and respiratory viral vaccines (e.g., PIV3, MMR, influenza, or rotavirus). In addition, the candidate will perform regulatory review (e.g., product chemistry, manufacturing and control, validation, and review clinical protocols) of licensed and experimental pediatric viral vaccines. The initial appointment is for two years and may be extended up to seven years as a **TENURE-TRACK POSITION** based on candidate's satisfactory performance and mutual agreement. *Candidates must be U.S. citizens or resident aliens eligible for citizenship within four years.* Salary is commensurate with experience and training. Applications sent to: **C. D. Atreya, Ph.D., 1401 Rockville Pike, HFM-460, Rockville, MD 20852** on or before April 15, 2001, will be considered. **E-mail: atreya@cber.fda.gov**.

REMOTE SENSING

The U. S. Department of Agriculture, Agricultural Research Service, Western Integrated Cropping Systems Research Unit, Shafter, California, is recruiting for an interdisciplinary permanent full-time position as a **RESEARCH AGRONOMIST, PLANT PHYSIOLOGIST**, or **ECOLOGIST**. As a team leader, the incumbent will use existing and develop novel airborne remote sensing tools to accurately determine and predict crop growing conditions including pest presence, water management, nutrient management, and other factors that could influence management decisions and yield. The overall objectives are to develop user-friendly systems of remotely sensed and georeferenced field conditions to enable decision making by crop consultants, growers, or custom applicators. Salary range is $43,326 to $80,279 (GS-11/12/13) per year. A degree in an appropriate field is required; Ph.D. desired. Obtain the full vacancy text via **website: www.afm.ars.usda.gov/divisions/hrd/hrdhomepage/empopp.htm** or call **Barbie Ballengee; Telephone: 661-746-8000**; indicate Announcement Number ARS-X1W-1222. For technical details of the position, contact the **Research Leader, Michael R. McGuire; Telephone: 661-746-8001**. Applications must be postmarked by April 30, 2001. *Applicants must be U.S. citizens. USDA-ARS is an Equal Opportunity Provider and Employer.*

POSITIONS OPEN

PROFESSOR
Structural Biology/Proteins

As part of the School of Biological Science's expansion of its capabilities in structural biology, a senior faculty member with expertise in protein science is being sought. The school is searching for an individual with expertise in protein science, structure, imaging, assembly, etc. This person must have a demonstrated academic record deserving this rank with evidence of an independent research career supported through the competitive peer-review system. The school has a strong infrastructure and facilities for structural biology (**website: http://sgi.bls.umkc.edu**) and has targeted this aspect of research along with the complementary field of molecular genetics/genomics as one of the twin prongs for expansion of scholarly activity. A teaching commitment is expected. The school is a fundamental component of the basic science needs of a comprehensive life sciences initiative in the Kansas City region and is nationally competitive in its capabilities in recruiting faculty.

Please submit a complete application or nomination with letter of interest, names of references, curriculum vitae, and general research plans to:

Dean, School of Biological Sciences
Attention: SB/P
University of Missouri Kansas City
5007 Rockhill Road
Kansas City, MO 64110-2499

Evaluation of applications will begin May 1, 2001; applications are welcome until the position is filled.

University of Missouri Kansas City is an Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR IN THE MOLECULAR GENETICS OF DEVELOPMENT
California Institute of Technology

We invite applications for a tenure-track Assistant Professor appointment in the Division of Biology at the California Institute of Technology. We are seeking highly qualified candidates who are committed to a career in research and teaching. The applicant should conduct research directed at understanding the molecular and genetic basis for development. The initial appointment term is four years, and appointment is contingent upon completion of all the requirements for a Ph.D. Review of applications will begin in February 2001 and will continue until the position is filled. Applicants should submit curriculum vitae, list of publications, a brief statement of research interests and teaching experience, and arrange for three letters of recommendation to be sent to:

Professor Paul W. Sternberg
Molecular Genetics of Development
Search Committee
Division of Biology 156-29
California Institute of Technology
Pasadena, CA 91125
E-mail: pws@caltech.edu

The California Institute of Technology is an Affirmative Action/Equal Opportunity Employer. Women, minorities, veterans, and disabled persons are encouraged to apply.

RESEARCH ASSOCIATE

The Ernest Gallo Clinic and Research Center, a biomedical facility affiliated with the University of California, San Francisco, has an immediate opening for an outstanding Research Associate. The successful candidate will be studying drug abuse in flies. This position is ideal for highly motivated individuals considering eventually pursuing a career in science. Requires a B.S./B.A. Working experience with standard DNA/RNA procedures, detail-oriented, ability to work independently, and excellent interpersonal skills.

Please **e-mail** résumé to: **hr@egcrc.net** or **FAX: 510-601-7943**. We offer a competitive salary and an excellent benefits package. *We are an Equal Opportunity Employer/Affirmative Action Employer committed to workforce diversity.*

WEILL MEDICAL COLLEGE OF CORNELL UNIVERSITY

ANNOUNCES:

The Weill Cornell Program of Excellence in Gene Therapy Scholars Program

The NHLBI/NIH Program of Excellence in Gene Therapy at Weill Medical College of Cornell University invites applications from MD, PhD, or MD/PhD physicians and scientists for **four positions** in a unique two year postgraduate program designed to provide comprehensive training in Genetic Medicine. During the first year, Scholars will receive instruction in the preparation and use of DNA and RNA gene transfer vectors, growth and maintenance of stem cells, regulatory approval, and ethics in Genetic Medicine. During the second year, Scholars will select one area in which to perform a concentrated laboratory or clinical study. To supplement the training program, Scholars will attend lectures and seminars in Genetic Medicine and receive formal evaluations.

The Weill Cornell Program of Excellence in Gene Therapy incorporates state-of-the-art facilities including the Belfer Gene Therapy Core Facility, the Institute of Genetic Medicine at Weill Medical College and the Gene Transfer and Somatic Cell Engineering Facility at the Memorial Sloan-Kettering Cancer Center.

To apply, send your curriculum vitae, a detailed cover letter describing your interest in the program, and the names & contact information for three professional references to:
Administrative Manager, Institute of Genetic Medicine
Weill Medical College of Cornell University
1300 York Ave, Box 96, Room W-401, New York, NY 10021
Fax: 212-746-8824 Email: pegt-admin@med.cornell.edu

Application deadline: April 27, 2001
Program start date: September 10, 2001

http://www.med.cornell.edu EOE/AA/M/F/D/V

Director, Flow Cytometry Core
Division of Intramural Research
National Heart, Lung and Blood Institute, NIH

The National Heart, Lung and Blood Institute (NHLBI) seeks to hire a Staff Scientist within the Division of Intramural Research to direct a new Flow Cytometry (FACS) Core. The incumbent will direct and manage the FACS Core which consists of analyzers, sorters, and a fluorescent microscope with camera. The incumbent will provide consultation services for experimental design, perform experiments in collaboration with investigators, review data, and teach procedures for analyzer use. The Core Director will supervise a medical technologist responsible for operating the cell sorters, and will oversee the organizational operation of the laboratory, including instrument maintenance and operation, collection and storage of patient specimens and execution of CLIA requirements, computer data management and scheduling, budget oversight, and establishment of rules and operating procedures. Applicants must have a Ph.D., M.D. or M.D./Ph.D. and experience applying and evaluating results from experiments utilizing flow cytometry. U.S. citizenship is also required.

The successful candidate will be offered a competitive salary and benefits under Title 42. Applications must be received by **April 13, 2001**. Please submit a curriculum vitae and a brief statement of research interests along with three letters of reference to:

Ms. Kim Westervelt, Personnel Office
National Heart, Lung and Blood Institute
31 Center Drive, MSC 2484, Building 31, Room 5A28
Bethesda, MD 20892-2484
Westerveltk@nhlbi.nih.gov

Please include vacancy identifier, **HL-01-0017**, on ALL correspondence.

NIH IS AN EQUAL OPPORTUNITY EMPLOYER

Agricultural Research Service

Agricultural Research Service
Director, Plant Sciences Institute
Beltsville Agricultural Research Center

This is a Senior Executive Service position with the U.S. Department of Agriculture.

The Director of the Plant Sciences Institute (PSI) is responsible for leadership and management of thirteen research laboratories covering all areas of plant science and comprised of about 130 Ph.D research scientists, 400 total employees, and a budget of $29 million. PSI is the largest of the Institutes and Centers making up the Beltsville Agricultural Research Center, which is the largest and most comprehensive agricultural research center worldwide. Scientists in PSI represent a variety of disciplines, including microbiology, entomology, botany, plant pathology, plant physiology, genetics, genomics, soil science, agronomy, horticulture, chemistry, systematics, and nematology. The outstanding quality of research in PSI is exemplified by the recent designation of the top ten accomplishments in plant pathology of the 20th century by the American Phytopathological Society: of the ten, three were the work of PSI scientists, two by a scientist who is currently on staff.

This position requires considerable flexibility and skill in providing effective leadership of research to a wide diversity of research programs, many of which are cooperative, multidisciplinary programs with the other Institutes and Centers at Beltsville–the Animal and Natural Resources Institute, the Beltsville Human Nutrition Research Center, and the U.S. National Arboretum as well as cooperators in other institutions. It requires systematic, coordinated planning to achieve broad, goal-oriented research results and to ensure transfer of technology to farmers, consumers, and industry. The incumbent must also establish and maintain effective work relationships with Federal and State agencies, cooperators, and representatives of consumers and industry groups. Salary $115K-$130K.

For program information, please contact **Dr. Phyllis E. Johnson, Beltsville Area Director, (301) 504-6078 or email to johnsonp@ba.ars.usda.gov.**

The complete vacancy announcement and information about how to apply is found at **http://www.ars.usda.gov/afm/hrd/vacancy/01-01** or contact **Human Resources Division Telephone: (301) 504-1448.** Persons who previously applied must reapply. Applications must be received by April 20, 2001.

USDA/ARS IS AN EQUAL OPPORTUNITY EMPLOYER.

USDA Agricultural Research Service

PLANT PHYSIOLOGIST. The U.S. Department of Agricultural Research Service, Alternate Crops and Systems Laboratory, Plant Sciences Institute, Beltsville, Maryland, is seeking applications for a Plant Physiologist, GS-435-12/13/14. Salary is commensurate with experience ($53,156 to $97,108 per annum) and benefits. *U.S. citizenship is required.* The mission of the Laboratory is to apply systems theory to the solution of complex agricultural problems and to develop computer-aided farm decision support systems. The incumbent will be expected to (1) develop conceptual models of the physiological processes involved in plant growth, development, reproduction, and senescence; (2) use both published and unpublished data to develop mathematical models of crop processes and integrate these models into crop simulators; (3) where suitable data are not available, conduct studies in controlled environment plant growth cabinets on the effects of environment on plant physiological processes; (4) provide team leadership in the development and testing of dynamic crop simulation models that are based on the physical, chemical, and physiological processes involved in the crop system; (5) use the crop simulation models to make predictions about the effects of climate, soil conditions, and various management practices on yields, water pollution, etc. The primary product of this research will be crop simulation models that realistically mimic the essential responses of crops to environmental factors. The research assignment requires the use of equipment to measure photosynthesis, transpiration, tissue expansion, and carbon partitioning. Candidates must request the vacancy announcement (ARS-X1E-1217) by calling **Telephone: 301-504-1482** or via the ARS **website: www.ars.usda.gov**. Candidates must submit specific information as outlined in the vacancy announcement. Applications must be postmarked by May 29, 2001. *USDA/ARS is an Equal Opportunity Provider and Employer.*

ANALYTICAL BIOCHEMIST

Exelixis Plant Sciences, Inc. (formerly Agritope, Inc.), an agricultural functional genomics and biotechnology company that develops improved plant products and provides technology to the agricultural industry, is seeking an Analytical Biochemist to provide leadership and expertise for a high-throughput screening program for phytochemicals of interest. Responsibilities will include new analytical method development and validation of protocols, identification or development of laboratory automation systems, implementation and oversight of high-throughput screens for phytochemical diversity, collaboration with supporting technical groups, and communication of research results both internally and externally. A Ph.D. in chemistry, biochemistry, or biochemical genetics is required; additional postdoctoral experience preferred. Extensive use with LC/GC-MS instrumentation and software, demonstrated experience with analytical method development and validation, experience with high-throughput analysis of plant samples, and expert knowledge in one or more areas of plant natural product metabolism are required. Exposure to genetics and supervisory experience are preferred. To apply, mail, FAX, or e-mail résumé and cover letter by April 9, 2001, to: **Human Resources, Exelixis Plant Sciences, 16160 S.W. Upper Boones Ferry Road, Portland, OR 97224. FAX: 503-213-2063; e-mail: pkhan@exelixis.com.** *Equal Opportunity Employer.*

RESEARCH SCIENTIST

Texas BioGene, a growing biotechnology company at Dallas, Texas, is looking for a talented Scientist. Requirement: Ph.D. with two to four years of industrial microbiology (soil microbiology preferred) and/or molecular microbiology. Company offers outstanding possibility for career advancement. Curriculum vitae and three references to **Telephone: 972-644-9798; e-mail: mchen@texasbiogene.com.**

POSITIONS OPEN

TEXAS A&M UNIVERSITY
Department of Plant Pathology and Microbiology

The Department of Plant Pathology and Microbiology of Texas A&M University invites applications for the following faculty positions:

(1) Plant Molecular Biologist (**ASSISTANT PROFESSOR**, 12-month tenure track) to develop an extramurally funded program with research emphasis on host defense responses to pathogens leading to the development of new strategies and plant germplasm for management of diseases. Teaching responsibilities may include both undergraduate and graduate courses. Ph.D. in plant pathology or related field required.

(2) Field Crops Plant Pathologist (**ASSISTANT PROFESSOR/ASSOCIATE PROFESSOR**, 12-month tenure track) to develop a problem-solving research program focusing on management of diseases of field crops with an emphasis on sorghum and maize. Teaching responsibilities may include both undergraduate and graduate courses. Ph.D. in plant pathology or related field with documented experience beyond the Ph.D. is required.

(3) Extension Plant Pathologist (**ASSISTANT PROFESSOR**) located at the Texas A&M Research and Extension Center in Dallas, Texas, to conduct applied research and develop educational programs and materials with a primary emphasis on urban plant pathology on turf and ornamentals and a minor emphasis on field crops pathology. Ph.D. in plant pathology with two years of experience required.

Send a letter of application, transcripts, curriculum vitae, statement of research and teaching interests, and three letters of reference to: **Dennis Gross, Head, Department of Plant Pathology and Microbiology, Texas A&M University, 2132 TAMU, College Station, TX 77843-2132. Telephone: 979-845-7313; e-mail: plpm-head@ppserver.tamu.edu**. Screening of applicants will begin May 2001 and will continue until suitable candidates are identified. For additional information concerning these positions and our department, see **website: http://plantpathology.tamu.edu/**. *An Equal Opportunity/Affirmative Action Employer.*

PROTEIN CRYSTALLOGRAPHY ELECTRON MICROSCOPY

Two **RESEARCH ASSOCIATE/POSTDOCTORAL FELLOW** positions available for qualified candidates interested in structural studies of membrane receptors and receptor-ligand interactions. (1) Protein crystallographer: preferably with experience in protein expression systems. (2) Electron Microscopist: preferably with experience in cryoelectron microscopy and/or protein expression systems.

Excellent facilities are available for protein crystallography, electron microscopy, computation, etc., in the Center for Advanced Biomedical Research at Boston University School of Medicine.

Send curriculum vitae and two letters of reference to: **Dr. G. Graham Shipley, Department of Physiology and Biophysics, Boston University School of Medicine, 715 Albany Street, W302, Boston, MA 02118-2526.**

Boston University School of Medicine is an Equal Opportunity/Affirmative Action Employer.

BIOLOGIST. The Biology Department of Hobart and William Smith Colleges invites applications for a one-year renewable position at the rank of **VISITING ASSISTANT PROFESSOR**. Teaching responsibilities will include introductory- and intermediate-level courses in the major. Preference will be given to candidates with teaching experience and a Ph.D. completed by the time of hiring. Hobart College for men and William Smith College for women are coordinate residential colleges that share a campus in the Finger Lakes region of New York. A full job announcement is posted at **website: http://www.hws.edu/ADM/hr/biology.htm**. Review of applications begins March 20, 2001, and will continue until the position is filled.

POSITIONS OPEN

MUSC
MEDICAL UNIVERSITY OF SOUTH CAROLINA

MACROMOLECULAR CRYSTALLOGRAPHY

The Medical University of South Carolina has identified structural biology, with an initial emphasis on X-ray crystallography, as a top priority for research development. Facilities to investigate the structure of biological macromolecules using X-ray crystallography have now been established on campus, and the Program in Structural Biology is seeking to recruit Crystallographers who would complement existing areas of strength. Current areas of research strength related to macromolecular investigation include signal transduction, molecular genetics, lipid biochemistry, ligand/protein interactions, and enzymology. The University offers a research environment rich in senior-level scientific experience, a strong tradition of interdisciplinary research in biological sciences, excellent laboratory facilities, and a record of highly successful and continuing peer-reviewed research funding (five-year growth from $66 million to $120 million currently). As a member of SER-CAT, MUSC has regular access to two synchrotron beamlines currently under construction at the Advanced Photon Source, Argonne, Illinois.

Applications are invited from Structural Biologists to develop research applications using X-ray crystallography. Tenure-track appointments will be made at the **ASSISTANT**, **ASSOCIATE**, and/or **PROFESSOR** levels. Applicants must have a Doctoral degree, evidence of scientific productivity and scholarly achievements in X-ray crystallography, and an interest in teaching. The successful candidates at senior levels will have a well-established, peer-review funded research program and proven ability to lead and participate in teams in a highly collaborative environment. Send curriculum vitae, a brief description of research and teaching interests, and the names and e-mail addresses of three references to: **Crystallography Search Committee, Department of Biochemistry and Molecular Biology, Medical University of South Carolina, Charleston, SC 29425**. *The Medical University of South Carolina is an Affirmative Action/Equal Opportunity Employer.*

ENVIRONMENTAL SCIENCE PROGRAM FELLOWSHIP
Ecosystem Restoration Program
Austin, Texas

Environmental Defense, a national not-for-profit research and advocacy organization, seeks an early career **SCIENTIST** for a newly created one-year Fellowship with the possibility of renewal for the second year. You will be part of a team of Scientists, Economists, and Policy Specialists working to educate policymakers and citizens on the environmental impact of water supply projects and to develop preferable alternatives for meeting Texas' water needs. Primary responsibilities will be to analyze and document impacts of new reservoirs on key ecologically sensitive river segments and on the state's bays and estuaries, coordinate closely with Scientists at various academic institutions in Texas, and testify at legislative and administrative hearings. Preferred candidates will have a degree in aquatic ecology, fisheries, hydrology, or natural resource management and the ability to research and understand impacts of water management strategies on wildlife and habitat. Candidates must possess the ability to communicate technical and scientific information. Salary: $35,000 per year. Send curriculum vitae, cover letter, and contact information with three references to:

Kim Brooks
Assistant to the Program Manager
Environmental Defense
44 East Avenue
Austin, TX 78701
FAX: 512-478-8140
E-mail: kbrooks@environmentaldefense.org

Equal Opportunity Employer/Affirmative Action.

Postdoctoral Research Position
National Institute of Allergy and Infectious Diseases
National Institutes of Health

A postdoctoral position is available immediately for molecular studies on rotaviruses, agents with segmented double-stranded RNA genomes that are the primary cause of acute diarrhea in infants and young children. Potential research areas include describing the mechnism of genome packaging and replication, identifying determinants affecting viral growth and virulence, and developing a reverse genetics system. Applicants should have a strong background in virology, molecular biology or biochemistry and hold a Ph.D. or M.D. degree. Salary begins at $31,000 and increases depending on experience. Please send curriculum vitae and the names of three references to:

Dr. John T. Patton
Laboratory of Infectious Diseases
NIAID
Bldg. 7, Room 117
7 Center Drive, MSC 0720
Bethesda, MD 20892
FAX: (301) 496-8312
E-mail: jpatton@niaid.nih.gov

NIH is an Equal Opportunity Employer

It's what we do.
It's who we are.

Employment opportunities in West Point, PA

Merck & Co., Inc., is a global leader in the research, development, manufacturing, and delivery of world-class pharmaceutical products and services. That's just one of the reasons we're consistently recognized by *Fortune* magazine as one of **"America's Most Admired Companies."** We currently have excellent career opportunities located in **West Point, PA.**

We are looking for highly motivated individuals who have a desire to work on exciting challenges involving process development for the production of vaccines and gene therapy vectors. The candidate will be working on process science issues involving microbial or mammalian cell growth, bioreactor operation, protein expression, virus production, and recovery of protein and virus. The positions available within the department will expose the candidates to state-of-the-art technologies in cell and microbe cultures as well as modern analytical technologies.

Biochemical Engineer

We have positions open for candidates with a Bachelor's or Master's degree in chemical engineering or biochemical engineering with an excellent academic record. The candidate will have 2-5 years' experience in bioreactor operation and mammalian cell culture techniques. Excellent oral and written communication skills are a must. Candidates should also possess the ability to work in a team environment and be able to multi-task. **PAF Code: XHXMRCEKK031901**

Biochemist/Microbiologist/Biologist

We are looking for a highly motivated individual who possesses excellent laboratory skills involving biological assays, cell culture, biochemistry and modern molecular biology techniques. The candidate will work toward development and application of new and innovative biochemical, immunological and cell-based assays in order to understand cellular and viral interactions with special emphasis on process development. We require a Bachelor's or Master's degree in biology, biochemistry, life sciences, microbiology or a related discipline with 2-5 years of laboratory/industrial experience. **PAF Code: XHXMRCEKK031902**

We provide a comprehensive salary and full benefits package including one of the best 401(k) plans in the nation. To be considered, please forward your curriculum vitae, with a cover letter and the names of 3 references, to: **Bioprocess Recruiting, Merck & Co., Inc., WP17-201, P.O. Box 4, West Point, PA 19486. Email: bioprocess_research@merck.com Please include PAF Codes in subject section.** Qualified candidates will be contacted. No phone calls or agencies please. We are an Equal Opportunity Employer, M/F/D/V.

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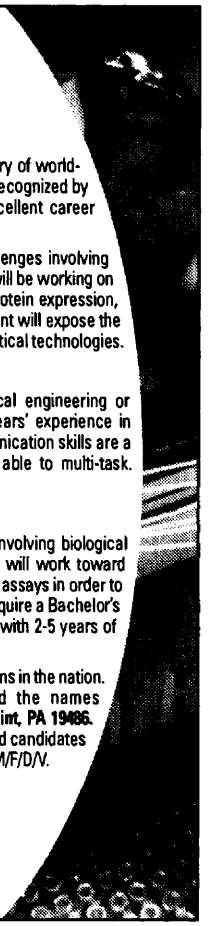

Center For
Sustainable Fisheries

The Rosenstiel School of Marine and Atmospheric Science of the University of Miami seeks applications for **Director** of the newly established **Center for Sustainable Fisheries**. The **Center** will serve as a nexus for developing and integrating interdisciplinary scientific understanding, and supporting technology, as applied to the management and policy issues germane to sustainable fisheries, for multiple species systems on both a regional and global basis. We seek an innovative, dynamic individual who has strong standing within the science, management and policy communities. The successful candidate will provide leadership in developing science and policy research directions for the **Center**, leading major fund-raising campaigns, and fostering linkages with state, national and international organizations and private interests. This is a fully endowed, senior position within an appropriate division of the School. A Ph.D. is required. Send Curriculum Vitae, Statement of Research Interests and Leadership Philosophy, names of five referees to: **Dr. Robert K. Cowen, Chair, CSF Director Search Committee, Marine Biology and Fisheries, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, FL 33149**. Screening of candidates to begin by March 31, 2001. *The University of Miami is an Affirmative Action/Equal Opportunity employer.*

RSMAS University of Miami
ROSENSTIEL SCHOOL
OF MARINE & ATMOSPHERIC SCIENCE

Staff Scientist Position in Biochemistry
National Heart, Lung, and Blood Institute
National Institute of Health

A Staff Scientist position is available in the Laboratory of Biochemistry of the National Heart, Lung, and Blood Institute for an individual with experience in molecular biology and biochemistry. The Staff Scientist will be directed by the Chief of the Section on Protein Function in Disease, whose research focus is on the role of oxidative modification of proteins in physiology and disease. The successful candidate should have previous research experience in this field. This will include identification of oxidatively modified proteins; cloning, expression, and purification of the identified proteins; characterization of the native and oxidatively modified proteins. The Staff Scientist will also provide research support for other investigators in the Laboratory of Biochemistry.

The position is open immediately for a PhD or MD scientist with at least five years post-doctoral research experience. Applicants should have experience in molecular biological techniques including construction of transgenic or knockout mice, in enzyme purification and assay, and in HPLC-based mass spectroscopy along with publications in peer-reviewed journals. The initial appointment will be for 3 years, with re-appointment if mutually agreeable. The salary will depend on the qualifications of the candidate. Applications should be received by **April 2, 2001**.

To apply, send a letter of interest, curriculum vitae, and bibliography and arrange for three letters of reference. Communication by e-mail, including attached files, is welcome.

Donald Ouellette, Personnel Management Specialist
Personnel Management Branch
National Heart, Lung, and Blood Institute
National Institutes of Health
31 Center Drive, MSC 2484, Bldg. 31, Room 5A28
Bethesda, Maryland 20892-2484 USA
(301) 496-6477; ouelletd@nih.gov
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EIGHT POSTDOCTORAL POSITIONS
Center for Molecular Neurobiology
The University of Chicago

Postdoctoral positions are available immediately in the areas of neuronal development, cell migration, axon guidance, neurodegenerative diseases, and genetic animal models of psychiatric and neurological disorders. Candidates should have a strong background in cellular/molecular/developmental biology.

Dr. Kamal Sharma: specification of neuronal identity and development of the spinal motor circuits. **Sharma, K., Leonard, A.E., Lettieri, K., and Pfaff, S.L.** *Nature* **406**:515–519, 2000. **Sharma, K. et al. and Pfaff, S.L.** *Cell* **95**:817–828, 1998.

Dr. Yimin Zou: molecular mechanisms of axon guidance and cell migration during the development of the vertebrate nervous system. **Zou, Y., Stoeckli, E., Chen, H., and Tessier-Lavigne, M.** *Cell* **102**: 363–375, 2000. **Zou, Y. et al. and Tessier-Lavigne, M.** In preparation.

Dr. Gopal Thinakaran: cell and molecular biology of Alzheimer's disease. **Thinakaran, G.** *J. Clin. Invest.* **104**:1321–1327, 1999. **Sato, N. et al. and Thinakaran, G.** *Nature Cell Biol.* **2**:863–870, 2000.

Dr. Xiaoxi Zhuang: genetic and behavioral dissection of reward and dopamine system dysfunction. **Zhuang, X. et al. and Hen, R.** *Proc. Natl. Acad. Sci. U.S.A.* In press, 2001. **Zhuang, X., Belluscio, L., and Hen, R.** *J.* Neurosci. **20**:RC91:1–5, 2000.

Applicants should send résumé and three letters of reference to:

Ms. Keli Uhter
Center for Molecular Neurobiology
The University of Chicago
Knapp R212, 924 East 57th Street
Chicago, IL 60637
FAX: 773-834-3808
E-mail: kuhter@bsd.uchicago.edu

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

Two **POSTDOCTORAL POSITIONS** are available to join ongoing neurophysiological and computational studies of synaptic function. Our goal is to extend a general theory of use-dependent synaptic plasticity by combining experiments on cells with computational analysis of simple neuronal circuits (**Karila and Horn,** *J. Neurosci.* **20**:908, 2000; **Schobesberger, Wheeler, and Horn,** *J. Neurophysiol.* **83**:1912, 2000). New experiments will employ patch clamp recording using dynamic clamp methodology and intracellular recording coupled with morphological analysis. Both projects can provide training in computational modeling and opportunities for career development in a highly interactive neuroscience community (**website: http://cnup.neurobio.pitt.edu/**). Send curriculum vitae and names of three references to: **Dr. John P. Horn, Department of Neurobiology, E1440 BST, University of Pittsburgh School of Medicine, Pittsburgh, PA 15261. E-mail: jph@pitt.edu**. *The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available to work on neuronal apoptosis. Our research is focused on the role of glycogen synthase kinase (GSK)-3β in regulating neuronal survival following exposure of cells to well-defined neurotoxic stimuli. Experiments include analyses of intracellular signal transduction as well as studies designed to identify novel inhibitors of GSK-3β that may have neuroprotective effects. Our laboratory occupies newly constructed research space in a highly collaborative environment, and our work is supported by a newly funded NIH grant. Strong training and career development opportunities are available. Our laboratory employs a diverse range of techniques including recombinant virus vectors (adenovirus, herpesvirus); phage display technology; and oher approaches. Please send curriculum vitae and names of three references to: **Dr. Steve Dewhurst, Department of Microbiology and Immunology, University of Rochester Medical Center, 601 Elmwood Avenue, Box 672, Rochester, NY 14642. E-mail: stephen_dewhurst@urmc.rochester.edu.**

POSITIONS OPEN

THE SCRIPPS RESEARCH INSTITUTE

RESEARCH TECHNICIANS
GENETICS OF MOUSE BEHAVIOR

We are seeking several motivated and qualified **TECHNICIANS** to join a large effort at The Scripps Research Institute for identifying novel genetic models of human sleep and neuropsychiatric disorders in the mouse. Experience with mouse husbandry and breeding is essential, and a background in acquisition and analysis of behavioral data is preferable. The successful candidates will join a multidisciplinary team in the Torrey Pines area of San Diego, California, studying mouse genetics with the goal of defining novel gene functions and creating a broad array of new models for human disease. Please refer to Job ICNDKWS when sending curriculum vitae. **E-mail** to: **resumes@scripps.edu; FAX** to: **858-784-8071;** or **mail** to: **TSRI, North Torrey Pines Road TPC–11, La Jolla, CA 92037**. *TSRI is an Equal Opportunity Employer; Minorities/Females/Veterans/Disabled.*

RESEARCH SCIENTIST
PARKINSON'S DISEASE

The Centre for Research in Neurodegenerative Diseases at the University of Toronto seeks a Scientist to develop a basic research program in Parkinson's disease. Investigations may involve studies in a variety of areas of neurobiology including molecular and cellular biology, pharmacology, model systems, protein structure, or gene regulation. Successful candidates will have a demonstrated ability to develop an independent and innovative research program and an ability to interact and collaborate with an existing multidisciplinary team of Investigators studying neurodegenerative diseases. The University rank will be commensurate with experience. In addition to start-up costs and competitive salary, funding is available to support ongoing research expenses. The successful candidate is also expected to obtain independent, peer-reviewed extramural funding. Interested candidates should submit their curriculum vitae, statement of research interests, and the names and addresses of three references to: **Dr. Anthony Lang, Jack Clark Chair for Parkinson's Disease Research, Centre for Research in Neurodegenerative Diseases, Tanz Neuroscience Building, 6 Queen's Park Crescent West, Toronto, Ontario M5S 3H2 Canada**. Closing date for applicants is June 1, 2001. *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.*

STAFF ASSOCIATE

A Staff Associate position is available in the Colleen Giblin Research Laboratories, Division of Pediatric Neurology, Columbia University. Requirements include postgraduate degree and laboratory research experience including tissue culture expertise. Primary responsibilities involve day-to-day management of our laboratory and tissue culture facility including maintenance and distribution of biopsied tissue cultures, mycoplasma testing, maintenance of laboratory equipment and service contracts, and regular survey of laboratory inventory. Excellent interpersonal skills and a willingness to participate independently and collaboratively as part of an active research team are required. Administrative duties include supervision of environmental health and safety monitoring, laboratory security system, cryofreezer backup emergency telephone system, and laboratory budget. Excellent salary and fringe benefits commensurate with job requirements and applicant's professional background. Responses should be directed to: **Dr. Darryl C. De Vivo, Director, Colleen Giblin Laboratories, Neurological Institute, 710 West 168th Street, New York, NY 10032**. *Columbia University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP
GENE TRANSFER INTO HEMATOPOIETIC STEM CELLS
National Cancer Institute

POSTDOCTORAL POSITIONS are now available in the Experimental Transplantation and Immunology Department of the National Cancer Institute (NCI) in the laboratory of **Dr. Dennis Hickstein**. The laboratory focuses on the genetic correction of hematopoietic stem cells in animal and human models of genetic disease and hematologic malignancy. We are currently using molecular genetic techniques for all facets of gene transfer. Experience in molecular genetic techniques including retroviral-mediated gene transfer as well as tissue culture experience is strongly recommended. The laboratory is part of a highly interactive group emphasizing clinical application of basic investigation.

Interested applicants should send curriculum vitae, brief description of research interests and experience, and contact information for three references to:

Dennis D. Hickstein, M.D.
Senior Investigator
Department of Experimental Transplantation and Immunology
National Cancer Institute
Building 10, Room 12N–226
National Institutes of Health
Bethesda, MD 20892
E-mail: hicksted@mail.nih.gov

The NCI is an Equal Employment Opportunity and Affirmative Action Employer that values and fosters diversity throughout the entire organization. Selection for this position will be based solely on merit, with no discrimination for nonmerit reasons such as race, color, religion, gender, national origin, politics, marital status, physical or mental disability, age, sexual orientation, or membership in an employee organization.

TOXICOLOGIST

The Department of Physiological Sciences, College of Veterinary Medicine, Oklahoma State University, invites application for a tenure-track position in toxicology at the rank of **ASSISTANT** or **ASSOCIATE PROFESSOR**. Applicants should have a Ph.D. in toxicology or a closely related science. Responsibilities include the development of a strong extramurally funded research program and participation in the CVM graduate education program. It will be expected that the successful candidate will participate in the development of a research program in toxicology. Opportunities exist for collaboration with other research faculty in the CVM, the University of Oklahoma Health Sciences Center, and other OSU departments involved with environmental and applied toxicology research. Interested individuals should send an application including curriculum vitae, statement of professional goals, and names of three references to: **Dr. Carey N. Pope, Professor, Physiological Sciences, College of Veterinary Medicine, 264 McElroy Hall, Stillwater, OK 74078-2014. Telephone: 405-744-6737; e-mail: pcarey@okstate.edu**. To ensure full consideration, applications should be received by May 15, 2001, and review of applications will continue until a suitable candidate is identified. *OSU is an Equal Opportunity/Affirmative Action Employer that encourages applications from members of minority groups.*

POSTDOCTORAL POSITION is available at the Medical University of South Carolina in a laboratory investigating characterization and cloning of genes that regulate the formation and effect of vitamin D metabolites and characterizing gene mutations that cause rickets, osteoporosis, or abnormal calcium metabolism. A strong background in molecular and cell biology is essential. Curriculum vitae, summary of research interests, and names of three references should be sent to: **Norman H. Bell, M.D., Director, Division of Bone and Mineral Metabolism, Medical University of South Carolina, 114 Doughty Street, P.O. Box 250775, Charleston, SC 29425. E-mail: belln@musc.edu; FAX: 843-876-5163**. *MUSC is an Equal Opportunity Employer.*

The University of California at San Francisco

UCSF

Postdoctoral Researcher Position

A postdoctoral position is available to study the molecular etiology of childhood leukemia. The Department of Epidemiology and Biostatistics in the School of Medicine at the University of California at San Francisco seeks applicants with molecular biology and/or biochemistry experience, and a Ph.D. in a relevant discipline. The successful candidate will explore the origin and mechanism of translocations that lead to leukemia, and can also participate in other projects in the molecular etiology and epidemiology of leukemia and other cancers. The position would commence upon hire and the level of appointment will be commensurate with education and experience.

Applicants should send a cover letter and curriculum vitae by April 30, 2000 to:

Dr. Joseph L. Wiemels, Ph.D.
c/o Phillip Babcock
Laboratory for Molecular Epidemiology
UCSF/Epi-Biostat
500 Parnassus Ave., MU 420A West
San Francisco, CA 94143-0560

UCSF is an EOE/AA employer

National Center for Research Resources (NCRR) - National Institutes of Health

NCRR:Catalyst for Discovery

Associate Director for Clinical Research

The National Center for Research Resources (NCRR) invites applications for the position of Associate Director for Clinical Research (ADCR), NCRR, NIH. One of the four NCRR research areas, the Clinical Research area establishes and supports specialized multi-disciplinary laboratories and shared resources for clinical research; supports specially adapted and professionally staffed clinical research environments; and supports clinical research training and career development of physicians and dentists to become independent clinical investigators. The ADCR serves as a member of the senior leadership of the Center and is responsible for planning, formulation, program review, development, and evaluation of all programs encompassed by the Clinical Research (CR) area, and in the overall administration of the CR area, and will have supervisory authority over administrative and scientific staff. Direction of the CR area includes three complementary sets of programs: 1) a national network of about 75-80 General Clinical Research Centers; 2) a portfolio of regional and national research resources to foster clinical research; and 3) a portfolio of programs for enhancing the interests of medical students in clinical research; career development of young promising physicians; and providing protected time for established clinical investigators. Qualified applicants must possess an M.D. or equivalent combination of experience and training. Candidates must be established scientists with considerable experience in clinical research; be nationally recognized for scientific achievements by the scientific community and considered an authority in his/her scientific field.

To view the full text vacancy announcement and requirements, applicants are strongly encouraged to access the NIH automated vacancy retrieval system at **http://careerhere.nih.gov** and view vacancies within the National Center for Research Resources. Total salary is competitive and will be commensurate with experience of the selectee. Send applications to National Institutes of Health, National Center for Research Resources (NCRR), 31 Center Drive, MSC 2131, Bethesda, MD 20892. For additional information contact the NCRR Personnel Office on (301) 496-1524. Deadline for applications is 3/18/01. Public Health Service Commissioned Officers interested in performing the duties of the position within the Commissioned Corps may submit a resume to the above address.

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DISCOVER YOUR CAREER OPPORTUNITIES

Looking to further your research career? The Government of Canada offers Visiting Fellowships at the postdoctoral level to highly motivated scientists and engineers to work with research groups in Canadian government laboratories.

This is your opportunity to advance your career and work with well-established researchers in Canada.

Departments and agencies currently offering Visiting Fellowships include:

Agriculture and Agri-Food Canada, Canadian Space Agency, Environment Canada, Fisheries and Oceans Canada, Health Canada, Industry Canada, National Defence, National Research Council Canada and Natural Resources Canada.

To find out more, contact:
Visiting Fellowships Program
Scholarships and Fellowships Division
NSERC
350 Albert Street
Ottawa, ON K1A 1H5
Telephone: (613) 996-3789 **E-mail:** distribution@nserc.ca
Visit our Web site: www.nserc.ca

Government of Canada / Gouvernement du Canada

Canada

UNIVERSITY OF Miami
SCHOOL OF MEDICINE

DIRECTOR
Dr. John T. Macdonald Foundation Center for Medical Genetics

The University of Miami invites recommendations and applicants for the position of Director, the Dr. John T. Macdonald Foundation Center for Medical Genetics. The University of Miami has recently received a major private donation to establish a world class Center from the Dr. John T. Macdonald Foundation, a Coral Gables private foundation whose activities support and promote health care and welfare in the community.

The central goal of the new Center is to bring new talent and facilities to Miami, as well as bring together and coordinate the considerable activities in genetics already at the University of Miami School of Medicine. The result will be to bring the extraordinary developments in genetics and functional genomics to bear on the health and welfare of the people of South Florida, and indeed the country.

Candidates will be internationally recognized for their research contributions to human genetics, and be qualified for a tenured professorship within the University. Central areas of interest include the study of complex disease: cancer genetics, birth defects, stem cell research and research in prematurity. We anticipate a major effort in education of both the health care profession and the public in genetics.

A doctoral degree in a relevant discipline with formal training in genetics is required. If appropriate, candidates will be certified by the American Board of Medical Genetics.

Interested parties should contact: **R. Rodney Howell, M.D., Chair of the Search Committee for the Director of the Dr. John T. Macdonald Foundation Center in Medical Genetics, Department of Pediatrics (D820), P.O. Box 016820, Miami, Florida 33101 or rhowell@peds.med.miami.edu.**

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

CANADIAN BLOOD SERVICES POSTDOCTORAL FELLOWSHIPS

Canadian Blood Services (CBS) is accepting applications for Postdoctoral Fellowships to work with our affiliated research and development groups across Canada. CBS has active research programs in transfusion science emphasizing platelets, stem cells, plasma proteins, infectious disease, epidemiology, and clinical transfusion practice. Applicants should have a Ph.D. or M.D. degree and a strong research background. This two-year award includes a salary and research allowance and the possibility of a one-year renewal. Candidates must select and contact a CBS-affiliated Scientist to serve as the Postdoctoral Fellowship supervisor. A list of CBS-affiliated Scientists and forms are available at **website: www.bloodservices.ca** and from the research and development office (**e-mail: cilla.perry@bloodservices.ca**) of: **Canadian Blood Services, Research and Development, 1800 Alta Vista Drive, Ottawa, Ontario K1G 4J5 Canada.** Application deadline: July 1, 2001.

POSTDOCTORAL POSITION
Embryonic and Hemopoietic Stem Cells

Seeking Postdoctoral Associate to investigate blood development from human ES cells and molecular basis of hemopoietic stem cell leukemia. Skills in molecular or cellular biology, ES cell culture, tumor immunology, or signal transduction are required. Please send curriculum vitae and three letters of reference to:

George Q. Daley, M.D., Ph.D.
Whitehead Institute for Biomedical Research
Nine Cambridge Center
Cambridge, MA 02142
FAX: 617-258-5213
E-mail: daley@wi.mit.edu

POSTDOCTORAL RESEARCH ASSOCIATE
Virginia Mason Research Center
Seattle, Washington

Position available for motivated Scientist responsible for core production laboratory for generation of soluble MHC molecules and quality control of tetramer facility. Research and development applications in autoimmune and infectious diseases. Ph.D. required and experience in immunology and protein purification highly desirable. Please send inquiries and résumé to: **William Kwok, Ph.D., Virginia Mason Research Center, 1201 Ninth Avenue, Seattle, WA 98101. E-mail: bkwok@vmresearch.org.** Visit our **website: www.vmresearch.org.** *Equal Opportunity Employer/Affirmative Action.*

POSTDOCTORAL POSITION

An NIH-funded position is available to study the human herpesvirus-8 (HHV-8) kaposin oncogene and its association with Kaposi's sarcoma and pleural effusion lymphoma. Applicants must have experience with (1) recombinant DNA and cloning, (2) cell culture transfections, and (3) purification of recombinant proteins. Applicants should send curriculum vitae and names of references to: **Dr. Leonard J. Rosenthal, Department of Microbiology and Immunology, Georgetown University Medical Center, 3900 Reservoir Road, N.W., Washington, DC 20007. FAX: 202-687-1264; e-mail: rosenthl@georgetown.edu.**

POSTDOCTORAL FELLOWSHIPS/HISTOLOGISTS: Study the anatomical basis of neuropsychiatric illness with histological, morphological, and molecular biological techniques. Candidates with *in situ* PCR, nicotinic receptors, and immunohistology are especially encouraged to apply. Salary level in excess of NIH standards. Also recruiting Research Histologists. **Keith A. Young/Leigh A. Holcomb, CTVHCS Neuropsychiatry Research Program (151N), 1901 South First Street, Temple, TX 76504. E-mail: kayoung@medicine.tamu.edu.**

POSITIONS OPEN

UK

POSTDOCTORAL FELLOWSHIPS IN SPINAL CORD AND BRAIN INJURY RESEARCH
University of Kentucky

The Spinal Cord and Brain Injury Research Center (SCoBIRC) at the University of Kentucky College of Medicine invites applications for up to four Postdoctoral Fellowships. These fellowships are funded by the Kentucky Spinal Cord and Head Injury Research Trust and provide competitive salary and benefits for two years. Applicants should have a Ph.D. or M.D. in neuroscience or a related discipline and are expected to develop a strong research project in conjunction with one or more of the SCoBIRC faculty (**website: www.mc.uky.edu/scobirc/faculty.asp**). Fellowship applications will be reviewed beginning April 1, 2001, for appointment beginning July 1, 2001. Applications should include curriculum vitae; statement of research interests; and the names, addresses, and telephone numbers of at least three references. Applications should be sent via e-mail to: **James W. Geddes, Ph.D., Director, Spinal Cord and Brain Injury Research Center, Sanders-Brown Building, University of Kentucky, Lexington, KY 40536-0230. E-mail: jgeddes@uky.edu; Telephone: 859-257-1412, Extension 254; FAX: 859-323-2866.** *The University of Kentucky is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply.*

POSTDOCTORAL FELLOW

A Postdoctoral position is immediately available for participation in a project on the behavioral pharmacology of acute opioid dependence in rodents and small primates. Applicants should have a recent Ph.D. degree in pharmacology, neuroscience, psychology, or a related discipline. Please send curriculum vitae, the names and contact numbers of three references, and a brief description of career goals to: **Stephen G. Holtzman, Ph.D., Department of Pharmacology, Emory University School of Medicine, 1510 Clifton Road, 5001 Rollins Research Center, Atlanta, GA 30322.** *Equal Opportunity Employer/Affirmative Action.*

A POSTDOCTORAL POSITION is available to study molecular mechanisms of G protein signaling. Requires Ph.D., M.D., or equivalent. Experience in the signal transduction area is desired. Send curriculum vitae and the names of three references to: **Dr. Nikolai Artemyev, Department of Physiology and Biophysics, The University of Iowa, Iowa City, IA 52242-1109. Fax: 319-335-7330; e-mail: Nikolai-Artemyev@uiowa.edu.** *The University of Iowa is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.*

POSTDOCTORAL POSITIONS available to study molecular mechanism of mammalian mismatch repair and its impact on cancer and apoptosis. Multidisciplinary focus on mechanisms of DNA repair deficiency, genomic instability, and cancer. Experience in biochemistry and molecular biology desired. Send brief description of research experience, curriculum vitae, and three references: **Guo-Min Li, Ph.D., Department of Pathology, University of Kentucky, Lexington, KY 40536. FAX: 859-323-2094; e-mail: gmli@pop.uky.edu.**

POSTDOCTORAL POSITIONS available July 1, 2001, to study the development or function of neurons involved in neurological disorders such as Parkinson's disease and drug addiction, using zebrafish as a genetic model. Successful candidates shall have a recent M.D. or Ph.D. degree and publications in peer-reviewed journals. Please send letter of application describing your research interest, curriculum vitae, and names of three references to: **Dr. Su Guo, Department of Biopharmaceutical Sciences, University of California, San Francisco, CA 94143-0446. E-mail: suguo@itsa.ucsf.edu.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSISTANTS POSITION IN CHEMISTRY

University of Washington, Department of Chemistry and Department of Biochemistry, seeks outstanding candidates for several Postdoctoral positions in the group of **Professor Gabriele Varani**. These positions are intended for individuals with a strong commitment to excellence in research. Duties include the study of the structural basis of RNA-protein and RNA-drug recognition. The emphasis of the research projects will be the two major RNA-binding protein domains, the RRM and the dsRBD, and on human telomerase. These interdisciplinary projects will involve a variety of biochemical, biophysical, and computational techniques. Applicants with experience in molecular biology; nucleic acid chemistry; and RNA and protein chemistry, NMR, and X-ray crystallography are encouraged to apply. Informal inquiries about the projects can be made to: **Professor Gabriele Varani; e-mail: varani@chem.washington.edu** or **gv1@mrc-lmb.cam.ac.uk**. The positions are available from October 1, 2001, and the initial appointment will be for one year renewable for up to two additional years based upon performance. Salary will be in the range of $28,000 to $36,000 per annum according to experience.

Please submit curriculum vitae and the names of three individuals that will provide letters of reference to:

Professor Gabriele Varani
Department of Chemistry
Box 351700
University of Washington
Seattle, WA 98195-1700

Review of all applications will commence immediately and continue until all positions are filled.

The University of Washington is building a culturally diverse faculty and strongly encourages applications from women and minority candidates. Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION CELLULAR IMMUNE RESPONSE TO HIV

The CMRS, LIR, NIAID in Bethesda, Maryland, seeks a full-time Postdoctoral person with a background in immunology/molecular biology/virology. The laboratory investigates the cellular immune responses to HIV or SIV. A Postdoctoral position is available focusing on mechanisms of immune-mediated restriction of virus replication and effects of the virus on T cell function and gene expression. Expertise in flow cytometry and basic cellular immunology assays is desirable. A Ph.D. and/or M.D. is required. Candidates must have less than five years of postdoctoral experience. Salary is commensurate with experience. Please send curriculum vitae and the names, addresses, and telephone numbers of three references to: **Mark Connors, M.D., Laboratory of Immunoregulation, Clinical and Molecular Retrovirology Section, NIAID/NIH/Building 10, Room 11B09, 10 Center Drive, MSC 1876, Bethesda, MD 20892. Telephone: 301-496-8057; FAX: 301-402-0070; e-mail: mconnors@nih.gov.** Applications must be received by April 30, 2001. *NIH is an Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS are available for an NIH-funded project involving development of engineered enzymes in sterol synthesis and the rational design of taxa-specific inhibitors targeting sterol synthesis in infectious diseases using mechanistic rationales and structure- or logic-based design approaches. For Position Number One, a Ph.D. degree in biochemistry, medicinal chemistry, or a related field with experience in enzyme purification and mechanistic enzymology is required. For Position Number Two, a Ph.D. degree in molecular biology or a related field with a background and experience in cloning and sequencing genes is required. Send curriculum vitae, list of publications, and three letters of reference to: **Professor W. David Nes, Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX 79409-1061.**

Ecologist

The Biology Department of Carthage College invites applicants for an annual renewable Assistant Professorship in Ecology to teach introductory biology, ecology, conservation and courses for majors and non-majors in the candidate's area of interest. Ph.D. is required. We seek an individual with a strong commitment to teaching and involving undergraduates in research.

Located on the Lake Michigan shore, midway between Chicago and Milwaukee, Carthage offers quick urban access from a relaxed, small-city environment. More than ten million people live within a two-hour drive. Total college enrollment exceeds 2,200.

Send cover letter, curriculum vitae, statement of teaching interests and research goals, and letters from three references to: Charlotte Chell, Chair, Division of the Natural Sciences, Carthage College, 2001 Alford Park Drive, Kenosha, WI 53140. Application review will begin immediately and continue until the position is filled. Women and minorities are encouraged to apply.

Carthage

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Over US$1 million is now available to support truly novel research projects aimed at understanding the molecular basis of ataxia-telangiectasia (A-T). A major objective of grant awards will be to unravel the functional role of the ATM protein, especially in the development and maintenance of the brain, in collaboration with other labs that have already developed reagents such as ATM knock-out mice, monoclonal antibodies and biochemical assays for ATM activity. Projects with potential for identifying downstream therapeutic targets are of particular interest.

Competitive awards will be given to researchers for one- and two-year projects to be funded up to a total direct cost of $75,000 per year. No administrative overhead or fixed costs are supported.

Scientific excellence, originality, investigator competence and direct relevance to Ataxia-Telangiectasia are the paramount criteria in award decisions. All applications will receive quick reviews and decisions will be communicated to applicants within 30 days after proposals are received. Grant periods can begin as early as 15 days after grants are awarded.

For proposal guidelines, contact the A-T Children's Project or visit our web site.

668 South Military Trail
Deerfield Beach, FL 33442
Web site: www.atcp.org

A-T CHILDREN'S® PROJECT℠

Phone: (954) 481-6611
Fax: (954) 725-1153
Email: grants@atcp.org

FACULTY POSITIONS
GENOMICS AND BIOINFORMATICS

The University of Tennessee has awarded $10,000,000 to establish a CENTER OF EXCELLENCE IN GENOMICS AND BIOINFORMATICS. We are seeking up to 6 tenure track assistant, associate, or full professors who bring expertise in functional genomics and/or bioinformatics to join a strong group of biomedical researchers in the UT System. Applicants must have expertise in one of the following areas: transgenic/knockout technologies, proteomics, mouse mutagenesis, microarray, bioinformatics, complex trait analysis, and gene mapping/discovery. While the positions are on the Memphis campus at the University of Tennessee Health Science Center, exciting opportunities for research and graduate education exist with the Knoxville campus, St. Jude Children's Research Hospital, and Oak Ridge National Laboratories. Successful applicants will receive generous start-up packages, a competitive salary, and an appointment in a basic and/or clinical department. Applicants must have a Ph.D. and/or M.D. with postdoctoral training. The successful applicants are expected to have or develop an outstanding research program that utilizes one of the techniques noted above and to participate in or develop collaborative research projects with UT or affiliated faculty. Please send letter of research and teaching interests, CV, and names and addresses of at least three references to:

Center of Genomics and Bioinformatics
Search Committee
Univ. of Tennessee Health Science Center
855 Monroe Ave., Rm 515
Memphis, TN 38163
OR email to dgold@nb.utmem.edu

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POSITIONS OPEN

POSTDOCTORAL SCIENTIST MOLECULAR PATHOGENESIS/ VACCINE DEVELOPMENT

Position is available to candidates with strong background in immunology/molecular biology with particular interest in tuberculosis. Our goal is to find and characterize *Mycobacterium tuberculosis* antigens that might be involved in the host defense mechanisms. This position will involve the use of modern immunological and molecular approaches to define *M. tuberculosis* antigens associated with both MHC Class I and II molecules of the antigen-processing apparatus. Experience with *in vivo* experimentation is helpful and desired. Infectious Disease Research Institute is a growing institution and offers competitive salary and benefits. Please send curriculum vitae and statement of research interests by April 27, 2001, to: **Job Number 01-2001, Infectious Disease Research Institute, 1124 Columbia Street, Suite 600, Seattle, WA 98104. E-mail: office@idri.org; FAX: 206-381-3678.** *Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS

Postdoctoral positions available immediately at the Harvard Institutes of Medicine/Beth Israel Deaconess Medical Center to study the molecular mechanisms of oncogenes and tumor suppressor genes. We also study signaling mechanisms of p53- or BRCA1-mediated senescence or apoptosis. Join a team of enthusiastic, interactive Scientists working in an excellent research environment at Harvard Medical School. Interested candidates who have previous experience in molecular biology, cell biology, and transgenic and/or signal transduction should send their curriculum vitae and the names of three references to: **Dr. S. Lee, Harvard Institutes of Medicine, Room 921, 77 Avenue Louis Pasteur, Boston, MA 02115. FAX: 617-667-0980; e-mail: slee2@caregroup.harvard.edu.**

POSTDOCTORAL RESEARCH position is immediately available to study integration of insulin and P2Y nucleotide receptor-coupled intracellular signaling in vascular research muscle cell proliferation. Studies will focus on mapping the integration of multiple signaling networks activated by insulin and ATP (*Am. J. Physiol.* **280:**H795–H801, 2001). A strong background in cell biology, cellular biochemistry, and/or molecular biology is required. Please send curriculum vitae, summary of research experience, and names of three references to: **Dr. Peter A. Wilden, Department of Pharmacology, University of Missouri School of Medicine, One Hospital Drive, Columbia, MO 65212. E-mail: wildenp@missouri.edu.** *Equal Employment Opportunity/Americans With Disabilities Act/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE position available to study the molecular and cell biology of membrane transport proteins (glucose, nucleosides, amino acids) in the parasitic protozoa *Leishmania* and the African trypanosomes. Background in biochemistry, molecular, or cell biology is appropriate, but previous experience with parasites is not necessary. **Website: http://microbio.ohsu.edu/som-microbio/landfear.html.** Send curriculum vitae and references to: **Dr. Scott Landfear, Department of Molecular Microbiology and Immunology, Oregon Health Sciences University, 3181 S.W. Sam Jackson Park Road, Portland, OR 97201. E-mail: landfear@ohsu.edu.**

HARVARD MEDICAL SCHOOL POSTDOCTORAL POSITIONS

Positions available to study roles of the cell cycle and telomere maintenance in cancer and aging (*Nature* **380:**544 and **399:**784; *Science* **278:**1957 and **283:**1325; *G&D* **12:**706; *Mol. Cell* **6:**873). A strong background in molecular cell biology and/or biochemistry is preferred. Please send curriculum vitae and a research summary to: **Kun Ping Lu, M.D., Ph.D., Harvard Institutes of Medicine 1047, 330 Brookline Avenue, Boston, MA 02215. FAX: 617-667-0610; e-mail: klu@caregroup.harvard.edu.**

POSITIONS OPEN

NIH 2001 = [OPPORTUNITY]^N

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POSTDOCTORAL ASSOCIATE PLANT GENETICS/ PLANT MOLECULAR BIOLOGY

The U.S. Department of Agriculture, Agricultural Research Service, Plant Science Research Unit, St. Paul, Minnesota, is recruiting for an ARS Postdoctoral Research Associate (two-year appointment) in the area of plant genetics/plant molecular biology, GS-11, salary $44,380/year. A recent Ph.D. is required. The incumbent will conduct research on genomic approaches to nutrient stress adaptation in the model legume *Medicago truncatula*. The focus of the research will be on identifying genes involved in nutrient acquisition, particularly nitrogen and phosphorus, with the goal of improving nutrient acquisition in legumes. Applicants must demonstrate knowledge of plant genetics and plant molecular biology. Applicants also need knowledge of biochemistry, cell biology, and plant physiology. The successful candidate will collaborate with ARS and University of Minnesota personnel involved in *M. truncatula* genomics. Send curriculum vitae and three letters of reference to: **Dr. Carroll P. Vance, USDA/ARS, Agronomy and Plant Genetics Department, University of Minnesota, 411 Borlaug Hall, 1991 Buford Circle, St. Paul, MN 55108-6026. Telephone: 612-625-5715; e-mail: vance004@tc.umn.edu.** See further position information (RA-01-024H) on our **website: http://www.afm.ars.usda.gov/divisions/hrd/hrdhomepage.html.** *USDA-ARS is an Equal Opportunity Employer and Provider.*

POSTDOCTORAL POSITIONS in cancer causation and prevention are available to study the interactions of genetic and environmental factors in tumorigenesis. Projects include (1) transgenic rat models to study the role of cytotoxicity in tumor promotion (experience in molecular biology and protein expression required), (2) functions of polymorphic P450 1B1 proteins (experience in HPLC/EC detection required), and (3) microarray analysis in preclinical drug evaluation (experience in RNA isolation/hybridization and PCR analyses required). You will work in a newly renovated 3000-square-foot laboratory with extensive molecular biology instrumentation. Positions have competitive salaries and benefits. Interested individuals should provide their curriculum vitae and a list of three references to: **Dr. Thomas R. Sutter, Feinstone Center for Genomic Research, University of Memphis, 201 Life Sciences Building, Memphis, TN 38152-3560. E-mail: tsutter@memphis.edu.** *The University of Memphis is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS AVAILABLE IMMEDIATELY

Seeking three **POSTDOCTORAL FELLOWS** to join a dynamic research team engaged in studying (1) SIV/HIV pathogenesis in primate models, (2) the role of dendritic cells in HIV infection, and (3) active/passive immunoprophylaxis to prevent mother-infant transmission of HIV. Experience in virology, molecular biology, and/or cellular immunology is highly desirable. The positions involve a joint appointment at Harvard Medical School and Dana–Farber Cancer Institute. Send curriculum vitae and names of three references to: **Dr. Ruth Ruprecht, Dana–Farber Cancer Institute, 44 Binney Street, Boston, MA 02115 U.S.A. E-mail: ruth_ruprecht@dfci.harvard.edu; FAX: 617-632-3112.**

POSITIONS OPEN

POSTDOCTORAL POSITIONS
University of Illinois at Chicago

Several Postdoctoral positions are available immediately in the laboratories of **Dr. Peter Gettins** and **Dr. Steven Olson** to work on structural and mechanistic aspects of serpins and their cognate proteinases and on their clearance and signaling receptor LRP. For more details of the laboratories and projects, see **websites: www.uic.edu/depts/mcbtp/gettins.htm** and **www.uic.edu/depts/mcbtp/olson.htm.** We have excellent facilities for NMR (600 and soon-to-be-acquired 800), X-ray crystallography (in-house and close proximity to APS), fluorescence, and rapid kinetic studies Applicants should have or soon expect to have a Ph.D. in biochemistry, chemistry, or a closely related discipline with a strong interest in protein structure/function studies. Experience with NMR, kinetic, or X-ray crystallography applied to proteins is an advantage. *For training grant support, applicants should be U.S. citizens or permanent residents.* Good salary commensurate with qualifications. For consideration, send curriculum vitae and three letters of recommendation by April 1, 2001, to either: **Dr. Gettins; Department of Biochemistry and Molecular Biology, M/C 536, College of Medicine, 1853 West Polk Street** or **Dr. Steven Olson; Center for Molecular Biology of Oral Disease, M/C 860, College of Dentistry, 910 South Paulina, Chicago, IL 60612.** *UIC is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS
Beth Israel Deaconess Medical Center Harvard Medical School

RESEARCH FELLOW positions are available immediately to study stem cell transplantation in cardiovascular diseases. Areas of interest include animal models, cell differentiation, cardiogenesis, and angiogenesis. Our laboratory uses embryonic stem cells to study tissue repair of injured myocardium. Applicants should have a Ph.D. or M.D./Ph.D. with experience in certain areas of cell biology, pathology or immunocytochemistry, and molecular biology. Knowledge of nuclear transfer technique is greatly desirable. We offer a competitive salary and full benefits. Please e-mail or send a letter of interest, curriculum vitae, and the names of three references to: **James P. Morgan, M.D., Ph.D., Chief, Cardiovascular Division, Beth Israel Deaconess Medical Center, Harvard Medical School, 330 Brookline Avenue, Boston, MA 02215. E-mail: jmorgan@caregroup.harvard.edu.** *The BIDMC/Harvard Medical School is an Affirmative Action/Equal Opportunity Employer.*

NIH-funded **POSTDOCTORAL POSITIONS** available to (1) study neural and endocrine signaling (e.g., the neuropeptide Y homolog) in controlling *Drosophila* food response using molecular genetics and physiological and behavioral assays. Experience in fly transformation is highly desirable. One of the positions is ideal for a person who has a strong background in insect neurophysiology/endocrinology but wishes to learn molecular techniques **(Dr. Ping Shen).** (2) Study insulators/chromatin boundaries, a special class of regulatory DNA elements that modulate chromosomal structure and function, in the *Drosophila* model. Ph.D. with molecular biology and molecular genetic skills is preferred **(Dr. Haini Cai).** Send curriculum vitae and names of three references to respective mentors at: **Department of Cellular Biology, The University of Georgia, 724 Biological Sciences, Athens, GA 30602 U.S.A. E-mail: pshen@cellmate.cb.uga.edu** or **hcai@arches.uga.edu.**

POSTDOCTORAL FELLOWS

Postdoctoral positions are available immediately to study regulation of genes involved in resistance to anticancer drugs and apoptosis as well as novel mechanisms of resistance. Ph.D. and background in molecular biology and biochemistry are required. Send curriculum vitae to: **Ahmad R. Safa, Ph.D., Indiana University Cancer Center, 1044 Walnut, R4-119, Indianapolis, IN 46202. FAX: 317-274-8046.**

Call for Proposals

REQUEST FOR PROPOSALS

The Myelin Project and **The Eric D. Hovde and Steven D. Hovde Foundation** invite funding applications for research on new treatments for multiple sclerosis and other demyelinating diseases

The Myelin Project and The Eric D. Hovde and Steven D. Hovde Foundation intend to support pre-clinical and clinical studies on the development of novel therapies directed to alter the disease course of multiple sclerosis and other demyelinating diseases. Our aim is to promote and to facilitate initial studies of promising strategies that would have difficulty obtaining funding from traditional sources and/or from the pharmaceutical industry.

Prospective awards are intended for researchers specializing in experimental therapeutics, autoimmune diseases, myelin repair, or related fields. Proposals should address innovative approaches that will stop or slow the progression of multiple sclerosis and other demyelinating diseases or would lead to the repair of myelin damage to the CNS caused by such diseases. These studies could involve agents/procedures, combination therapies or other approaches entailing significant potential benefit for the treatment of MS patients or patients with other demyelinating diseases. We also are willing to fund animal or in vitro studies, but only those that fall into the preclinical category, i.e., those that are likely to lead to clinical trials, immediately or in the very short term. Within this group, we will give priority to those proposals whose authors are associated with medical centers that would be able to apply the results of their research in human trials.

The review process will be rapid, lasting at maximum three months from the date of proposal receipt. We will offer the authors of promising proposals the opportunity to consult directly with the review committee composed of recognized experts in the field of experimental therapeutics in multiple sclerosis and other demyelinating diseases. One or more grants up to a total of $1 million will be supported.

Detailed instructions are available from: **The Myelin Project, 2001 Pennsylvania Avenue, N.W. Suite 225, Washington, DC 20006-1850. Telephone: (202) 452-8994, Facsimile: (202) 785-9578, E-mail: myelin@erols.com.**

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DEPARTMENT OF ANATOMY
Faculty Appointment

National University of Singapore (NUS) invites applications for a full-time tenure-track faculty position for an Assistant Professorship in the Department of Anatomy. The Department has a tradition of excellence in teaching and research.

We are looking for an outstanding faculty member. The successful applicant should possess a basic degree in Medicine, Dentistry or Science with a PhD degree (or equivalent) and should have at least two years of postdoctoral experience.

All faculty members are expected to teach human anatomy, histology and/or neuroscience at both undergraduate and graduate levels, supervise graduate students, and conduct rigorous research programmes that generate external funding and scholarship and intellectual output typical of that of a world-class university. A medical background with research experience in cell biology or molecular neurobiology will be an advantage.

Interested parties should submit their applications, supported by a resume, detailed research plan and three letters of references directly to:

Assoc Professor Samuel SW Tay
Chairman, Search Committee
Department of Anatomy
Faculty of Medicine
National University of Singapore
4 Medical Drive
Singapore 117597

Fax: (65) 778-7643
E-mail: anttaysw@nus.edu.sg

Closing Date: 30 June 2001

Visit our website at **http://www.nus.edu.sg/NUSinfo/Appoint/med-anatomy.htm** for links to information on the Department, the University, terms and conditions of service, and to download the application form.

Only shortlisted candidates will be notified.

Awards

THE MELANOMA RESEARCH FOUNDATION

MELANOMA RESEARCH AWARDS

The Melanoma Research Foundation is a non-profit organization dedicated to the support of melanoma research and the melanoma patient community. Our research awards are aimed at supporting medical research that will further the development of effective treatments and ultimately a cure for malignant melanoma, while encouraging a new generation of scientists and clinicians to join in this mission. Applicants should be young faculty members who are beginning a career in melanoma research and have not yet established strong federal funding. Both basic and clinical research projects will be considered. Applications primarily for the support of a post-doctoral fellow will also be considered. The research awards are $30,000 per year for two years. Information on previous awards and applications materials are available on our website at http://www.melanoma.org. Applications must be received by July 1 of each year, to commence on January 1 of the following year.

Submissions and inquiries should be directed to:

Research Grant Committee
The Melanoma Research Foundation
114 West Magnolia St., Suite 440
Bellingham, WA 98225
Phone: 800-673-1290
Email: research@melanoma.org
Web: http://www.melanoma.org

IEEE FOUNDATION Journalism Internship

The Institute of Electrical and Electronics Engineers (IEEE), the world's largest professional technical organization with over 360,000 members worldwide, produces 30 percent of the world's published literature in electrical engineering, computers and control technology. We're proud to be the world's leading publisher in electrotechnology, and want to add you to our success story. IEEE Spectrum (www.spectrum.ieee.org), the flagship magazine of the IEEE, is inviting applications for a new internship program in technology journalism.

Young journalists will help write and edit articles on emerging issues in areas such as telecommunications, computer technology, and power and energy.

Internships range from a minimum of three months to a maximum of nine months. The deadline for applications is May 1, 2001. Support of $2800 per month will be provided to successful candidates. The first internship will begin September 4, 2001.

Applicants should have a minimum of an undergraduate background in engineering or science and ideally will have completed one year in a graduate program in journalism or have equivalent early work experience in journalism. To receive an application, contact **Nancy T. Hantman at 212-419-7561 or email: n.hantman@ieee.org**

IEEE SPECTRUM

www.ieee.org/about/hr

UNCF•Pfizer Biomedical Research Initiative

Postdoctoral Fellowships

United Negro College Fund

Pfizer

The United Negro College Fund and Pfizer Global Research and Development, have established an initiative to support the career development of under-represented minority post-graduates in the biomedical research fields.

- **Four (4) Fellowships Awarded in 2001**
- **Fellowships up to $51,000**
- **Support for 12-24 Months**
- **Mentoring by Pfizer Staff Scientists**

Applicants must be:

- A Ph.D. or equivalent degree recipient in a life or physical science
- Appointed as a postdoctoral fellow currently or by the end of the 2001 calendar year at an academic or non-academic research institution in the USA, including Pfizer (other private industrial labs are excluded)
- A member of a minority group that is under-represented in the biomedical research fields

Submitted applications must be postmarked by May 15, 2001
For application forms and more information, please contact:

Jerry L. Bryant, Ph.D., Director, Science Education Initiatives
United Negro College Fund, 8260 Willow Oaks Corporate Drive, Suite 110, Fairfax, VA 22031-4511
Phone: (703) 205-3503 *Fax:* (703) 205-3574 *E-Mail:* uncfpfizer@uncf.org *Internet:* www.uncf.org

"A mind is a terrible thing to waste."

Conferences

CBA 美国华人生物医药科技协会

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Other speakers:

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Dr. Gualiang Yu, Executive VP of Mendal Biotechnology, Inc.

Dr. Liang Cao, Vice President of Research, Aptus Genomics Inc.

Dr. Shuwei Yang, President of Genecopia, Inc.

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April 7-8, 2001
Marriott Hotel,
Gaithersburg, Maryland

For more information, please contact
Dr. Wei-Wu He at whe@emrgtech.com

Nuclear Receptors-Recent Developments

22-25 August 2001, Oslo, Norway

Confirmed Speakers:

Johan Auwerx, Illkirch
Leonard Freedman, New York
Chris Glass, La Jolla
Jan-Åke Gustafsson, Stockholm
Gordon Hager, Bethesda
Olli Jänne, Helsinki
James Kadonaga, La Jolla
Benita Katzenellenbogen, Urbana
Steve Kliewer, Research Triangle Park
Karsten Kristiansen, Odense
David Mangelsdorf, Dallas
Hilde Nebb, Oslo
Fahri Saatcioglu, Oslo
Günther Schütz, Heidelberg

The goal of the meeting is to foster the exchange of latest findings, ideas, and inspiration related to nuclear receptor biology. The meeting will be held at Soria Moria, a hotel/conference center which is up on the hills of Oslo, neighboring the northern forests of Nordmarka. It is a very relaxing place with a beautiful bird's eye view of the Oslo Fjord and easy access for hikes into the forest, but is very accessible to the city center as well.

The expected number of participants is about 150. In addition to the plenary lectures, there will be short talks chosen from the abstracts submitted by young scientists, as well as a Poster Session. The meeting will start on Wednesday evening on August 22nd and will end on Saturday August 25th after breakfast.

For registration and more information, please visit the web site **http://nr2001.no.embnet.org**

Organizers:

Hilde Nebb	Fahri Saatcioglu	Jan-Åke Gustafsson
University of Oslo	University of Oslo	Karolinska Institute

THE NATIONAL CANCER INSTITUTE

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- Scientists with 0-5 years of post-doctoral training in the areas of basic, clinical, or population-based biomedical research are invited to apply.
- Applications are due June 12, 2001.
- Must be a U.S. citizen or permanent resident.

For more details, contact:
Lester S. Gorelic, Ph.D., Cancer Training Branch, National Cancer Institute
301-496-8580 ▪ 301-402-4472 (Fax) ▪ lg2h@nih.gov
http://rex.nci.nih.gov/wlcm/SCHOLRS_MAIN.html

GLOBAL OPPORTUNITIES

NEDO

Announcement Regarding Entrustment of an Industrial Science and Technology Research and Development Project

The New Energy and Industrial Technology Development Organization (NEDO) is planning to add a new subtheme of research and development to the existing project in FY 2001 based on funds provided by the Ministry of Economy, International Trade and Industry (METI) of Japan.

The name of this existing research and development project is "Research and Development on Petroleum Refining Pollutant Reduction."

NEDO is planning to invite applications from organizations interested in participating in the above project. It is planned that a public announcement calling for applications will be made by the end of March, 2001. Details regarding application procedures, project outline and the date and place of the explanatory meeting will be posted on NEDO's homepage (http://www.nedo.go.jp) and announced in Keizai Sangyo Koho by the end of March, 2001.

Key Technology Development Department
Fax: 81-3-3987-9394
New Energy and Industrial Technology Development Organization (NEDO)
Sunshine Building 60 29F 3-1-1, Higashi-Ikebukuro, Toshima-ku, Tokyo, Japan

NEDO

Pre-Announcement Regarding Entrustment of Industrial Science and Technology Research and Development Projects

The New Energy and Industrial Technology Development Organization (NEDO) will launch new research and development projects based on funds provided by the Ministry of Economy, International Trade and Industry (METI) Japan.

The following new research and development projects are being carried out as part of NEDO's "Nanotechnology Materials Program:"

- Nanostructure Polymer Project
- Nanotechnology Glass Project
- Nanotechnology Metal Project
- Nanotechnology Particle Project
- Nanostructure Coating Project
- Synthetic Nano-Function Materials Project
- Nanotechnology Material Metrology Project
- Systematization of Nanotechnology Materials Program Results Project

NEDO is planning to invite applications from organizations interested in participating in the projects. It is planned that a public announcement calling for applications will be made in March 2001. Details regarding application procedures, project outlines and the date and place of explanatory meeting will be posted on NEDO's Web site (http://www.nedo.go.jp) and announced in Keizai Sangyo Koho in March 2001.

Key Technology Development Department
Fax: +81-3-3987-9394
New Energy and Industrial Technology Development Organization (NEDO)
Sunshine Building 60 29F 3-1-1, Higashi-Ikebukuro, Toshima-ku, Tokyo, Japan

POSITIONS OPEN

POSTGRADUATE RESEARCHERS
Department of Neurobiology and Behavior
University of California, Irvine

Postdoctoral positions are periodically available in the Department of Neurobiology and Behavior at the University of California, Irvine. These positions are for one or two years under the sponsorship of the following faculty members: **D. Aswad**, neurochemistry and molecular neurobiology; **L. Cahill**, brain mechanisms of emotion and memory; **T. Carew**, cellular and molecular mechanisms of memory; **C. Cotman**, brain aging, Alzheimer's, cell biology, biochemistry; **R. Frostig**, functional organization of cortex; **C. Gall**, regulation of neuronal gene expression; **R. Josephson**, design of skeletal muscle; **C. Kawas**, epidemiological studies of risk factors for AD, neuropsychology of AD, clinical-pathological correlation studies of late-life dementing disorders; **H. Killackey**, developmental neuroanatomy; **F. LaFerla**, Alzheimer's, neural apoptosis, transgenic animal modeling; **M. Leon**, brain development; **J. Marshall**, neuropharmacological approaches to behavioral analysis; **J. McGaugh**, neurobiology of learning and memory; **R. Metherate**, synaptic physiology and plasticity in sensory neuroprocesses; **R. Miledi**, molecular neurobiology and physiology of ion channels and receptors; **I. Parker**, intracellular calcium and cell signaling; **G. Sperling**, cognition, vision, and visual perception; **O. Steward**, mechanisms of synapse growth and plasticity; **G. Striedter**, neuroethology, behavioral neuroscience, evolutionary neurobiology; **K. Sumikawa**, molecular neurobiology of synapses; **N. Weinberger**, neural bases of attention and learning; **J. Weiss**, excitatory amino acids in neural signaling and neurodegeneration; **P. Yahr**, behavioral neuroendocrinology. Please send curriculum vitae along with names and addresses of three references to: **Jeffrey Beckwith, Personnel Analyst, Neurobiology and Behavior, 2205 Bio Sci II, Irvine, CA 92697-4550. FAX: 949-824-2447**; Department **website: http://darwin.bio.uci.edu/neurobio/**. *The University of California, Irvine, is an Equal Opportunity Employer committed to excellence through diversity.*

POSTDOCTORAL POSITION
NATIONAL CANCER INSTITUTE

The Biological Mechanisms Section (BMS), Basic Research Laboratory, Division of Basic Sciences, National Cancer Institute–Frederick, National Institutes of Health, under the direction of **Douglas Ferris, Ph.D.**, is working toward understanding the regulation and functions of Polo-related kinases during cell cycle progression and oncogenic transformation, principally using cultured mammalian cells as model systems. The BMS is seeking highly qualified **POSTDOCTORAL FELLOWS** with a strong background in molecular biology and cell biology and familiarity with protein biochemistry techniques.

Appointment duration is for up to five years, renewed on a yearly basis. Stipend is based on education and experience, with a range of $31,500 to $42,910. This position is available immediately.

Interested applicants must possess a Ph.D. and/or an M.D. and have no more than five years of postdoctoral experience (maximum eligibility is eight years). Submit a résumé and three letters of reference by March 30, 2001, to: **Dr. Doug Ferris, NCI–FCRDC, Frederick, MD 21702. E-mail: Ferris@mail.ncifcrf.gov**. *NIH is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION

Postdoctoral position is available in the Department of Biochemistry and Molecular Pharmacology of Thomas Jefferson University. This position is supported by an NIH training grant and is in the area of signal transduction. Candidates should have a Ph.D. and *be a U.S. citizen or permanent resident*. Please send curriculum vitae and three letters of reference to: **Dr. Gerald Litwack, Thomas Jefferson University, 233 South 10th Street, Philadelphia, PA 19107**. *Thomas Jefferson University is an Equal Opportunity Employer.*

POSITIONS OPEN

The Henry M. Jackson Foundation
for the Advancement of Military Medicine

POSTDOCTORAL FELLOW

The Henry M. Jackson Foundation for the Advancement of Military Medicine has an immediate Postdoctoral opening to work on the molecular pathogenesis of *Campylobacter jejuni*. The project involves characterization of a plasmid-encoded typed IV secretion system, which is required for virulence of *C. jejuni* 81-176, as originally described in **Bacon et al.**, *Infect. Immun.* **68**:4384–4390, 2000. The research will include biochemical characterization of the secretion system and target proteins as well as microarray analyses to study expression and regulation of plasmid genes. The work is in the laboratory of **Dr. Patricia Guerry**, Enteric Diseases Department, Naval Medical Research Center, Silver Spring, Maryland, a suburb of Washington, D.C. Send cover letter and résumé to: **Attention: PSTD, SNC–Henry M. Jackson, Foundation for the Advancement of Military Medicine, P.O. Box 549252, Suite 225, Waltham, MA 02454-9252. FAX: 781-663-8500; E-mail: hjf@hiresystems.com.**

Affirmative Action/Equal Employment Opportunity.

POSTDOCTORAL FELLOWSHIP POSITIONS
Lipid Metabolism Unit
Departments of Medicine and Molecular Biology
Massachusetts General Hospital and Harvard Medical School

Postdoctoral positions are currently available in the Lipid Metabolism Unit at the Massachusetts General Hospital. The Unit focuses on the cell biology of macrophage receptors that interact with physiologic and pathophysiologic lipids. Current work is centered on scavenger receptors (SR-A and CD36; *Nature Med.* **7**:41–47, 2001), lipopolysaccharide receptors (*J. Immunol.* **164**:2692–2700, 2000), and the ABCA1 transporter (**Fitzgerald, M.L. et al.**, *JBC*, papers in press). The unit is affiliated with the Molecular Biology Department and Endocrine Division of Massachusetts General Hospital and houses the functional genomics core for a newly awarded NHLBI program in genomics. Research is funded through federal grants from NHLBI, NIDDK, and NCRR as well as corporate sponsors. Transgenic and knockout animal facilities, microarray and proteomic tools, and collaborative interactions with bioinformatics programs at Harvard Medical School and Boston University are all currently part of the work of the Unit. Successful applicants possessing a Ph.D. in biochemistry, genetics, or molecular or cell biology will have demonstrated an ability to conduct innovative research as demonstrated by their publication record. Please send your curriculum vitae and three letters of reference to:

Mason W. Freeman
Lipid Metabolism Unit
Massachusetts General Hospital
GRJ 1328
32 Fruit Street
Boston, MA 02114
E-mail: freeman@molbio.mgh.harvard.edu

POSTDOCTORAL RESEARCH POSITIONS
Genomic Instability

Positions available to study regulation of genomic instability in human cells during carcinogenesis. Projects use biochemical/molecular approaches including analysis of transcriptional control/signaling pathways and 3-D cell-cell interactions. Specific projects include (1) characterizing cells from patients with predisposition to breast cancer for influences on genomic instability, (2) analyzing senescence-related gene silencing by DNA methylation, and (3) developing assays to identify and prevent early lesions in cancer. Recent papers: **Romanov et al.** *Nature* **409**: 633–637, 2001. **Tlsty, T., Hein, P.** *Current Opinion in Genes and Dev.* **11**: 54–59, 2001.

Curriculum vitae and list of references to **e-mail: ttlsty@itsa.ucsf.edu**.

POSITIONS OPEN

Stanford University School of Medicine: **POSTDOCTORAL FELLOWSHIPS** in neurophysiology and anatomy of neocortical and thalamic neurons and networks. Experiments focus on reorganizaton of receptors and circuits after injury; mechanisms regulating network oscillations; pharmacology and physiology of pre- and postsynaptic GABA, glutamate, and peptidergic receptors; modulation of interneuronal function; and mechanisms of epileptogenesis. Techniques include use of models of chronic cortical injury and epileptogenesis, whole cell and cell-attached patch clamp recordings in "thin" slices, scanning laser photolysis of caged glutamate, intracellular labeling, immunocytochemistry, and computer modeling. Eligibility: M.D., Ph.D., or equivalent and appropriate experience. *U.S. citizen or green card holder preferred.* Salary: NIH scale plus supplement. Send curriculum vitae, names of three references, and statement of interests to: **David A. Prince, M.D.** and/or **John R. Huguenard, Ph.D., Department of Neurology/Neurological Sciences, Room M016, Stanford University School of Medicine, Stanford, CA 94305-5122. E-mail: daprince@stanford.edu** and/or **john.huguenard@stanford.edu; FAX: 650-723-1080**. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately in our progressive research group, which is focused toward understanding the physiological, cellular, and molecular basis of estrogen and progesterone signaling in mammary gland development and tumorigenesis. The successful applicant will both generate new genetically engineered mouse models using state-of-the-art technologies and apply microarray approaches for gene expression profiling of existing mouse models in our laboratory. Applicants with a strong background in molecular biology and in using animal systems are strongly encouraged to apply. Applicants should have received their Ph.D. and/or M.D. within the past five years and *be eligible for an appropriate United States visa, if necessary*. Current curriculum vitae, a brief statement describing research and career goals, and three letters of reference (all required before applications are reviewed) should be sent to: **John P. Lydon, Ph.D., Baylor College of Medicine, Department of Molecular and Cellular Biology, One Baylor Plaza MS M603, Room M523A, Houston, TX 77030-3498 U.S.A. FAX: 713-790-1275; e-mail: jlydon@bcm.tmc.edu**.

POSTDOCTORAL POSITION
YALE UNIVERSITY

Available on or before July 1, 2002, to study regulation of ion channel function in pancreatic beta cells, neurons, and/or osteoblasts. The projects are relevant to diabetes, neurodegenerative disorders, and the anabolic effects of mechanical force on bone, and interest and experience in one of these areas is essential. *United States citizen or permanent resident strongly preferred.* Submit curriculum vitae and three letters of reference to: **Arthur E. Broadus, M.D., Ph.D., Section of Endocrinology, Yale University School of Medicine, Department of Internal Medicine, P.O. Box 208020, 333 Cedar Street, New Haven, CT 06520-8020. FAX: 203-737-4360; e-mail: arthur.broadus@yale.edu**. *Yale University is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH ASSOCIATES

Tulane University Health Sciences Center, Department of Urology, has two Postdoctoral positions available for characterization of novel genes associated with cancer using LCM, microarray, and molecular biology techniques, etc. Individuals (Ph.D. or M.D.) with a strong research interest and laboratory skills are required.

Applicants should send a cover letter together with a résumé and three references to: **Tulane University Health Sciences Center, Department of Urology, Attention: Dr. Abdel-Mageed, 1430 Tulane Avenue, SL–42, New Orleans, LA 70112**.

Tulane University is a nondiscriminatory Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

STARR POSTDOCTORAL FELLOWSHIP
Immunology, Malaria

Immediate opening for bright experienced candidate having good knowledge in immunology and good command of English with publications in international journals. Position should be filled latest May 2001. Research focuses on mechanisms of protective immunity in malaria and immunological memory and involves a rodent model of malaria vaccines applicable to humans. Appointment: minimum two years and salary commensurate with experience. E-mail or FAX curriculum vitae and names and addresses of three references, preferably from internationally known Investigators, to:

Dr. Ruth S. Nussenzweig
Department of Medicine and
Molecular Parasitology
New York University School of Medicine
E-mail: nusser01@popmail.med.nyu.edu
FAX: 212-263-8116

RESEARCH ASSOCIATE/ POSTDOCTORAL FELLOW

The CONRAD Intramural Preclinical Research Program at the Eastern Virginia Medical School (EVMS) is seeking qualified, motivated Investigators to work on discovery, characterizations, and development of microbicidal vaginal contraceptives. Main research lines in the laboratory are (1) cellular and molecular mechanisms common to mammalian fertilization and microbial infection. This is the multidisciplinary collaborative project focused on ligand-receptor recognition, signal transduction, and membrane dynamics. Emphasis is placed on discovery and characterization of novel compounds with antimicrobial activity, particularly against STD pathogens such as HIV and antifertility activity. Other projects in the laboratory include (2) characterizations of biological markers of vaginal inflammation, and (3) cellular and molecular mechanisms mediating spermatogenesis arrest in male contraception. Applicants should have a Ph.D. or equivalent degree (M.S. with exceptional qualifications may be considered). Expertise in reproductive biology, microbiology, or pharmacology is preferred. Please send résumé with salary requirements to: **Human Resources Department, Eastern Virginia Medical School, 358 Mowbray Arch, Suite 101, Norfolk, VA 23507**. *Affirmative Action/ Equal Opportunity Employer.*

POSTDOCTORAL RESEARCHER. Position (NIH funded) immediately available to study p-glycoprotein and multidrug resistance protein transporter modulation of xenobiotic bioavailability in the intestine. Candidates should have a Ph.D. in biology, cell biology, biochemistry, or related field. Experience in one or more of the following areas is desirable: transporter biology, molecular techniques, and/or *in situ* animal studies. Submit curriculum vitae and list of three references to: **Dr. Kevin Kleinow, Comparative Biomedical Sciences, Reference Number 1089, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA 70803. E-mail: kleinow@svmmac.vetmed.lsu.edu**. Applications will be accepted until April 15, 2001, or until candidate is selected. *LSU is an Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS are available immediately at McGill University, Montreal, Canada, to work on the molecular characterization of genes involved in the regulation of growth and lifespan in *C. elegans* and in vertebrates (e.g., **Lakowski and Hekimi**, *Science* **272**:1010, 1996; **Branicky et al.**, *Bioessays* **22**:48, 2000). Candidates must possess demonstrated skills in molecular biology. Apply by **FAX: 514-398-1674; e-mail: hekimi@tarnhelm.biol.mcgill.ca.**

GLOBAL OPPORTUNITIES

ANSTO leads a range of advanced research programs applying AMS to environmental, archaeological, atmospheric, quaternary science, and nuclear safeguards research. We seek a **RESEARCH MANAGER** with an international reputation in a radiocarbon-related field to lead our AMS group based in Sydney, Australia. Leadership, interpersonal skills, project management, and commercial orientation are required.

Contact: **Nick Falla; e-mail: nfalla@bridgeconsulting.com.au.**

SYMPOSIA

13TH INTERNATIONAL SYMPOSIUM ON ADP-RIBOSYLATION
Targeting ADP-Ribosylation for Development of New Therapies
June 8–11, 2001
New York, New York, U.S.A.

This meeting will bring together academic and pharmaceutical industry Scientists to exchange the latest information on ADP-ribosylation reactions and update progress on targeting these reactions for new therapeutic approaches for cancer, heart attack, stroke, inflammatory diseases, and others. The meeting also will contain a unique "science meets business" session in which the potential for commercial development will be presented to members of the investment community. All details concerning the meeting can be found at **website: www.ADPR2001.org.**

FELLOWSHIPS

POSTDOCTORAL RESEARCH TRAINING FELLOWSHIPS

Fellowships available to *residents of North America* with Ph.D., M.D., or comparable degree and less than one year of postdoctoral laboratory experience by application deadline for beginning training in basic biomedical research. The three-year award consists of a stipend of $36,000 for the first year, $39,000 for the second year, and $42,000 for the third year; $2,000 per annum research allowance; travel to Fellowship location; annual meeting. Applications must be received by deadline of August 15, 2001; Fellowships activate the following July. For application forms, write: **The Helen Hay Whitney Foundation, 450 East 63rd Street, New York, NY 10021. FAX: 212-688-6794; e-mail: hhwf@earthlink.net.**

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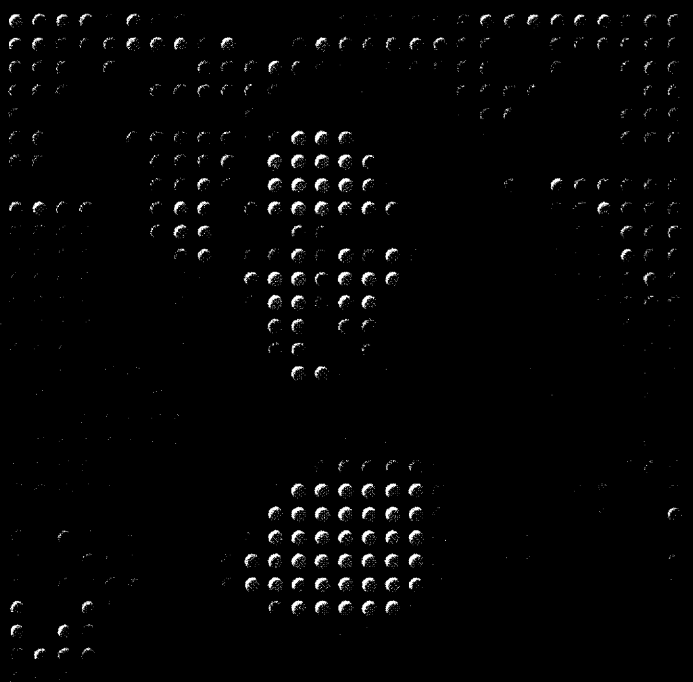

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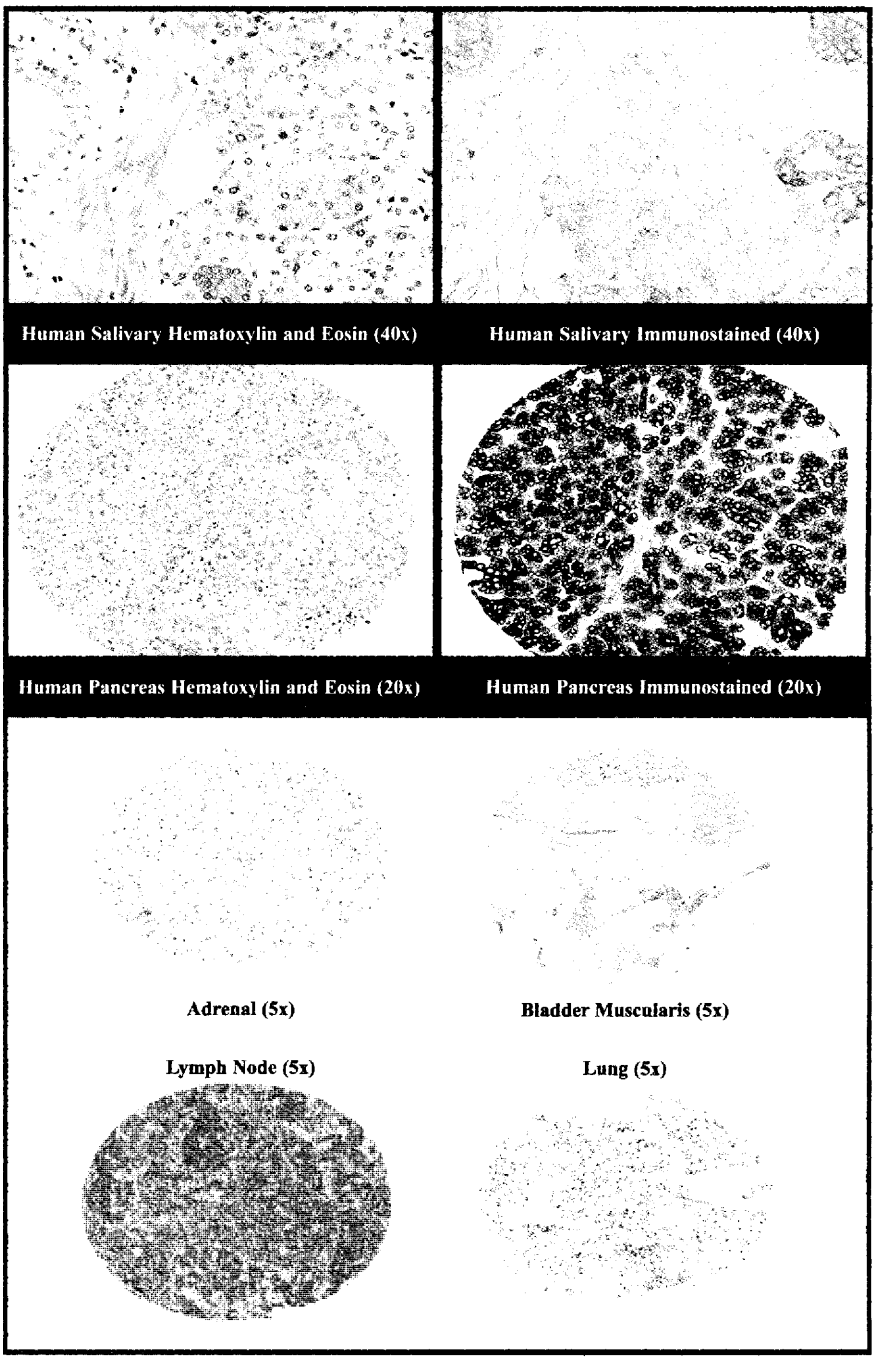

Human Salivary Hematoxylin and Eosin (40x)

Human Salivary Immunostained (40x)

Human Pancreas Hematoxylin and Eosin (20x)

Human Pancreas Immunostained (20x)

Adrenal (5x)

Bladder Muscularis (5x)

Lymph Node (5x)

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