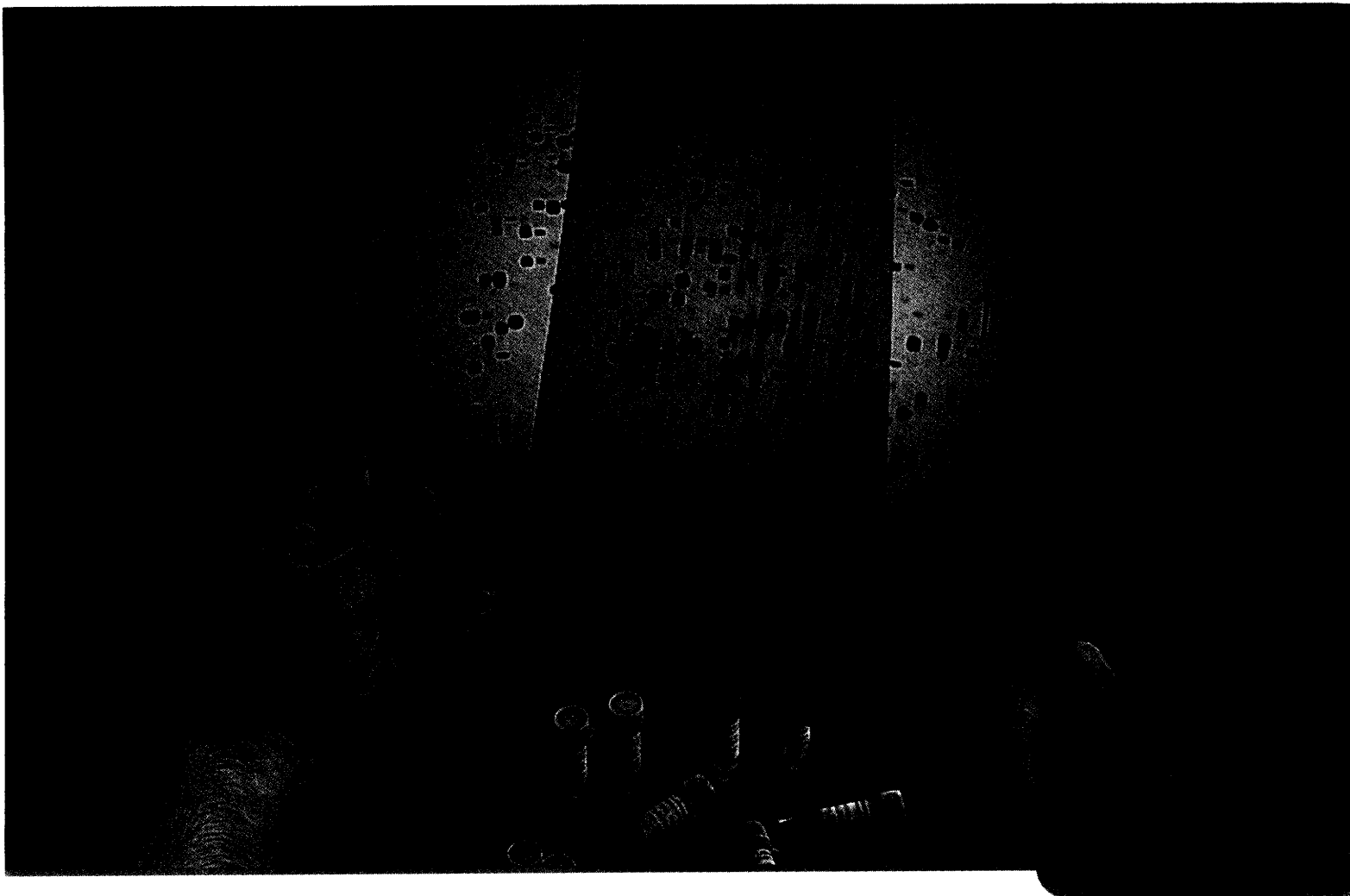




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TAKE YOUR PARTNERS

Pharmaceutical corporations and other life science companies worldwide are forming new types of partnerships with biotechnology vendors. The goal: new technologies, products, and services developed rapidly and specifically for the needs of research and development teams.

BY PETER GWYNNE AND GARY HEEBNER

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- » Not long ago, an individual life scientist with perhaps a couple of colleagues could turn up in the laboratory, undertake a lot of hard work, add a touch of inspiration, and as a result make significant discoveries. No more. Today, this type of isolated effort has given way almost entirely to projects carried out by larger and larger teams of scientists who collaborate across disciplines and even across oceans to answer complex questions and make valuable advances in understanding.
- » A glance at the authors list for any major paper in life science illustrates the changing nature of the research enterprise. While the number of coauthors does not yet approach the level of scores and even hundreds involved in some publications in elementary particle physics, key advances are rarely reported by individual scientists or monodisciplinary groups. The current approach to understanding the intricate processes involved in cellular function and the disease process has become more holistic and, in terms of achieving lasting results, more realistic than in the past.
- » Manufacturers face a similar transition. As demand for their products expands, they are shifting from designing and producing individual tools for laboratory research to becoming manufacturers of fully integrated systems and solutions. These new products and technologies have enabled a multitude of key discoveries in the life sciences, particularly in genomics and proteomics. Supporting that research, and often advancing it into previously unreachable territory, are automation products and software for bioinformatics and other forms of information technology (IT).

COLLABORATION WORLDWIDE

Some of the larger suppliers develop complete turnkey systems themselves. Others take a route less traveled so far – but one that promises to become a standard business model for coming years. They are collaborating with other firms to provide packages of more user-friendly and more powerful systems. Suppliers have long worked with customers to improve newly created platforms and products. Now, however, those relationships have become much closer, to the extent that both supplier and client share both the work of development and some of the risk that any development incurs.

"Particularly in pharmaceuticals, partnerships are becoming essential," says Neil Cook, chief scientific officer of **PerkinElmer Life Sciences**. "In a way it's an extension of the relationship you form when you go with an early concept. Developing products with early input reduces the risk for us. We get tweaks that the customers want to improve the products for them." Jeff Augen, director of business strategy for **IBM Life Sciences**, makes a similar point. "Our strategic focus is on joint development projects," he explains. "It's very hard to have just a basic seller-buyer relationship because everything you can possibly do needs some kind of technical development."

One other significant theme has emerged with growing force in the past year. Biotechnology and pharmaceuticals have become authentically global industries. "The same dynamic that you see driving health care and biopharmaceutical technology in the United States – increased aging of the population and expanding life expectancy – is also true globally," says Dorman Followill, vice president of healthcare practice for consulting firm **Frost & Sullivan**. "The pharmaceutical world that has been dominated by 20 or 30 North American and European companies will be less dominated by them. That means an enormous niche for biotechnology companies in other regions."

Pyrosequencing, a Swedish firm that specializes in enabling technologies for DNA analysis, has positioned itself to take advantage of the niche. "Globalization is very important for us," says Björn Ekström, the company's executive vice president and chief technology officer. "One very simple rationale is that the cost and effort it takes to compete in bioscience is of a magnitude that you can't justify selling only into a local market." Jenny Harry, executive vice president for drug discovery at Australian firm **Proteome Systems**, highlights one emerging region. "There's a tremendous market in Asia," she says.

SECTIONS:

- » COLLABORATION WORLDWIDE
- » FORMS OF COLLABORATION
- » CUSTOM COOPERATION
- » LEVELING THE PLAYING FIELD
- » THE INFORMATIC IMPERATIVE
- » NONPHARMA PARTNERSHIPS
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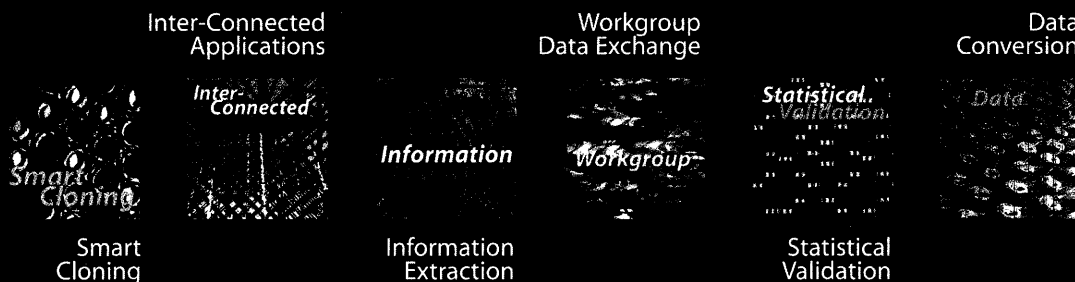
"We have good business in Japan. Singapore, Malaysia, Korea, China, Taiwan, and India will all be important. We're an international company and our focus is on doing international deals."

Jim Brown, president of **Amersham Biosciences'** international division, points out another facet of globalization: work in R&D labs outside Europe and North America has started to lead to products and technologies. "Some of the technology that has come out of Brazil, China, and Australia is commercializable," he says.

FORMS OF COLLABORATION

Collaboration in developing products and technologies for the life science industry takes several forms. Internal partnerships within a single corporate umbrella represent an obvious starting point. Thus **Applied Biosystems Group** and **Celera Genomics Group**, two parts of life science corporation **Applera**, helped to create the Celera Diagnostics last year as a joint venture between the two. "We started Celera Diagnostics using tools from Applied Biosystems and data from Celera Genomics," explains Michael Albin, Applera's vice president of strategic technologies. Now, he adds, "There are frequent dialogues between the three parts of the company. Part of my job is to look for synergies. We get together

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regularly with the top management of each company and discuss every functional aspect."

Corporate organizations have long encouraged cooperation among their individual companies and departments. What's new is its application to the life science industry in such a way as to benefit from the specific strengths of individual corporate units.

Similarly biotechnology companies have started to expand the tried-and-true use of customers to help develop and perfect new products. "As we have moved into more sophisticated platforms, and therefore larger investments by the customers, we are automatically brought into more partnership situations," says James Clough, president of Amersham Biosciences Europe. "The sums of money involved are more significant and the work the customer is doing is more complex. As a supplier you have to have a better understanding of what the customer is doing."

Partnerships aren't new to Amersham. "Back in the mid '90s we pioneered the concept of technology access and technology transfer agreements," says David Weber, president of the company's North American region. "That enabled us to develop high throughput screening and microarray products up to a point and then partner with a small, select group of customers who would work with us to make it commercially viable, and meanwhile get the competitive advantage of first access and developing the product to

meet their needs." Thus pharmaceutical companies have had the alpha version of Amersham's InCell analyzer for several months, helping to develop the essential biology. "We're in so many areas that we need to take advantage of opportunities our companies present us with to develop products," Clough adds. "In all our business areas we do extensive testing of new products in the market and collective development of products."

CUSTOM COOPERATION

Amersham is far from alone in convincing customers to help codevelop new products and technologies. "We try to involve the users in several stages during the development cycle, so that we don't just throw new products at them in the beta test and see what happens," says Sven Bülow, director of new business development for German company **Eppendorf**. "In many cases we involve focus groups of customers from the onset in the design of the product and during the development cycle." **Promega** operates in much the same way. "Essentially every product that we work on is in collaboration with customers or other companies that are clients," says vice president and chief technology officer Randy Dimond. "During the design of a product we'll often involve customers in the process. Sometimes we'll ask them to participate as partners."

Increasingly, partnerships between vendors and clients start with work on customized products and technologies. In moving in that direction, the biotechnology and pharmaceutical businesses are following a well-established process in the academic world. "Our commercial customers are asking us more frequently to design custom configuration products," says Dimond. "That's something we've done with academics for a long time."

Another company used that approach to establish itself in the commercial market. "**BD Biosciences Clontech** always targeted academic markets," explains Vera Imper, director of development at BD Biosciences. "Transitioning into pharma markets made it very difficult to develop generic kits that would be of value to all pharma customers. Instead, we determined that commercial customers would pay a premium for customized kits and for custom instrumentation."

Eppendorf's Bülow recounts similar experience. "We are seeing an increasing need for

customized solutions, especially in high throughput applications," he says. "For example, we see it on the DNA purification side with automation and the need for more parallel processing. We have developed 96- and 384-well DNA purification kits in very close proximity to the biotech industry customers who need these products and are clients for them. So the products were optimized with the handful of customers who had very specific needs; we optimized them for the individual needs of biotechnology units."

Custom work gives suppliers the opportunity to concentrate on technologies in which they have unique abilities. "There's a realization that it's not really practical for us to offer everything," says Rudy Potenzzone, CEO of German biotechnology and informatics company **LION Bioscience**. "We are focusing on the ability to integrate and bring together complete solutions. If customers don't have solutions in certain areas, we get the necessary technology and bring it together." That approach has brought LION a major partnership with global pharma Bayer in which LION bears part of the risk of drug development. "In bioinformatics the risk comes in when you do target finding and validation, as we do with Bayer," says Reinhard Schneider, LION's chief information officer.

LEVELING THE PLAYING FIELD

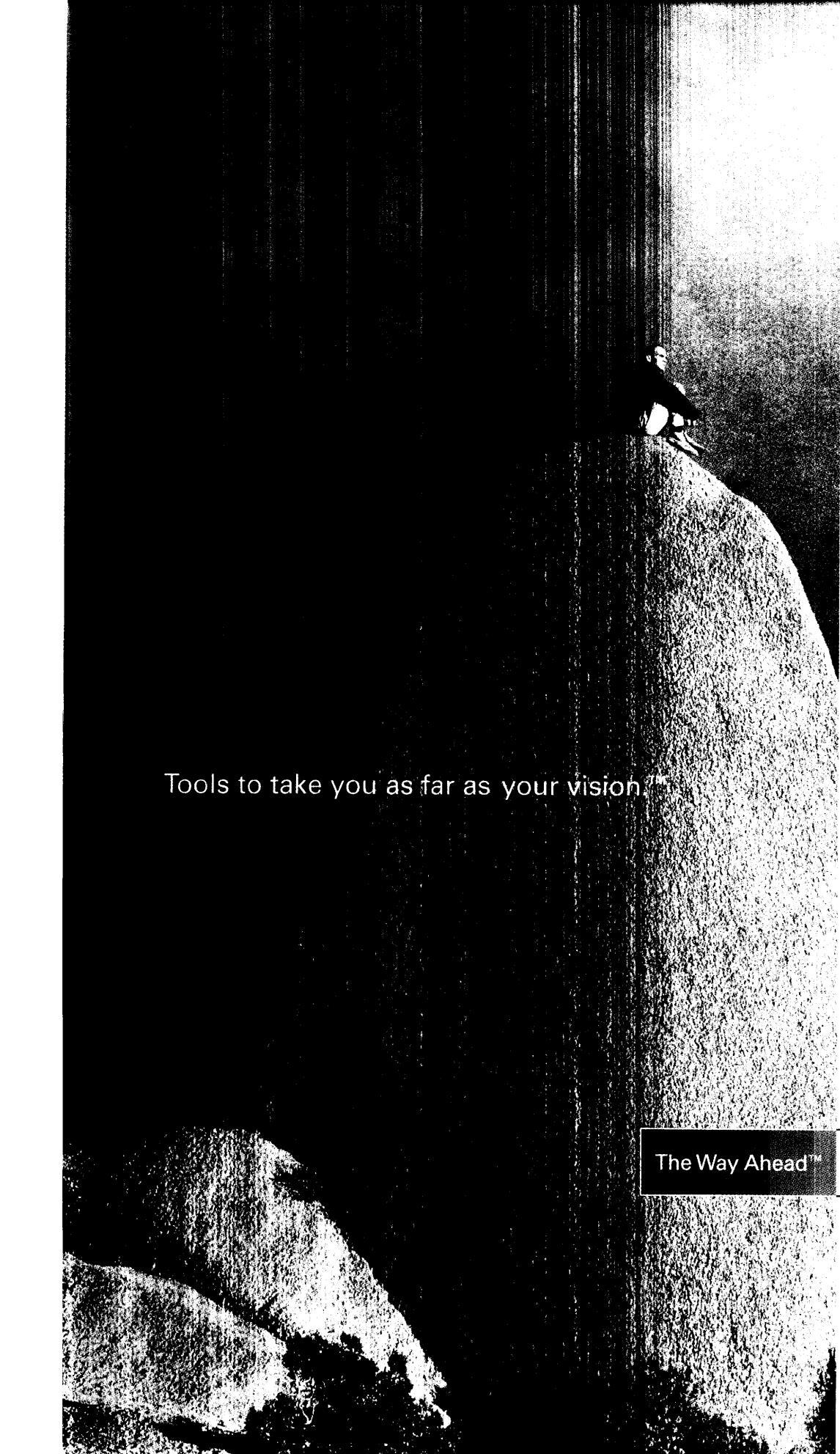
In several situations, collaborations merely start with the development of custom products and technologies. Pharmaceutical firms, faced with the need to refill their drug pipelines as patents on several of their products run out, have turned to biotechnology firms for the techniques essential to drug development in the post-genomic era.

Those potential partners want more than conventional fee-for-service agreements. "Increasingly biotech companies are negotiating with big pharma on a level playing field," says Frost & Sullivan's Followwill. "Large biotechnology companies are saying: 'We want to see more of the downstream revenues.' They see themselves as equal partners with big pharma. Why? In the 1990s the pharmaceutical world was driven by the sales and marketing ability of big pharma. Now technology created by biotech firms will drive it forward."

Doug Bassett, general manager of **Rosetta Biosoftware**, amplifies that point. "Pharmaceutical companies are clearly seeing the power of advanced genomics approaches and informa-

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tion science applications to drug discovery," he says. "The power of biotechnology in drug discovery is becoming quite clear. If you're a pharma you have to make sure that you have access to all the key technologies necessary to make sure that you are successful."

As a result, several biotechnology firms have signed high profile agreements with large pharmaceutical companies. "Big pharma companies realize that they have to become much sleeker and faster, with more sophisticated IT and data processing," says Followwill. "They're looking to acquire and or partner technology platforms." Bruce Venning, science director of British informatics firm **Nonlinear Dynamics**, outlines the advantages that this type of arrangement gives to specialist companies. "Working very closely with pharmas has real benefits," he says. "You have financial gain. You also benefit from working in an unimpeded manner because everything you do is not to be revealed outside."

Tripes, a developer of drug discovery chemical software and solutions, provides another example of the trend. "In the past most of our customers managed their IT and informatics themselves," says Trevor Heritage, senior vice president of discovery technologies. "More and more we have found that they are now spending their time developing new discovery technologies that present new challenges in data management and

analysis – challenges that the customers can't solve themselves. So they're bringing companies like ourselves into true partnerships in which we work closely with them to understand the discovery process, analyze what the work flow is, and figure how we can build them global solutions that streamline the whole process." Currently, he adds, "We have multiyear partnerships with Pfizer, Bayer, Schering-Plough, Bristol-Myers Squibb, and Novo Nordisk."

THE INFORMATICS IMPERATIVE

IT and bioinformatics have become particular targets for close collaborations and risk-sharing partnerships. That's not surprising, as they represent a win-win situation for both sides of the collaborations. Most pharmas lack the qualified people and the technology to embark on the serious work in bioinformatics that will make sense of their drug discovery research. Bioinformatics firms, meanwhile, have learned that they cannot live by data generation alone; they need to collaborate with partners who can use their technical strengths. Even Celera, which earned its fame from shotgun sequencing of the human genome, has had to move on from data generation. "Early on, most of Celera's business was based on the content," says Applera's Albin. "Now we've moved toward using that content internally to become a targeted drug company."

"Collaborations are absolutely critical for us," says Rosetta's Bassett. "In our case we develop collaborative partnerships directly with our customers as a means of continually enhancing our product offerings." Venning of Nonlinear Dynamics makes a similar point. "Collaborations of one level or another are absolutely vital, especially in the world of bioinformatics, as these facilities have to be built for the real needs of customers rather than the perceived needs," he says. "It's market-led, customer-led development. This kind of collaboration is an absolute must."

Big pharmas aren't the only companies that deal with large quantities of information. Canadian company **MDS Proteomics** knew that it needed help at an early stage. "We're a drug discovery company and our first focus is monoclonal antibodies," says Mike Moran, senior vice president for discovery research and chief scientific officer. "We realized that we would be dealing with huge amounts of data – protein sequences at a rate of one protein per second." So the firm organized a

partnership with IBM. "They helped us to build up rapidly and showed a need for databases," Moran says. "We realized that we couldn't undertake to 'backfill' such a database with all the publicly known protein information commercially, so we set up **Blueprint Worldwide** as a not-for-profit organization to manage a standardized database for protein interactions. We also have a collaborative relationship with IBM on problems related to protein folding and protein-small molecule interactions. IBM is part of our everyday life here. The partnership allows us to maintain some of our key long-term research work that doesn't have an obvious impact on the bottom line."

NONPHARMA PARTNERSHIPS

Partnerships aren't stimulated only by pharmaceutical firms. "We've recently launched a proposition to end users," says John Carrion, vice president of R&D at **Invitrogen**. "We have historically provided a number of different services, including complementary DNA libraries and cloning. Now we can provide these on a service basis rather than a straight product basis. The new partnership initiative is based on broadening our relationship with clients in terms of the services we offer."

Part of Invitrogen's thinking involves assuming some of the early risk of technology development. "In the past," explains CEO Lyle Turner, "we have pretty much relied on our clients' funding to develop the technology. In the last few months we have received authorization from our board of directors – to the extent of \$50 million in grants over the next five years – to take some of the early risk to guarantee worldwide exclusivity for the tools." That could set a trend. "If it can be managed to benefit the shareholders," says Invitrogen's vice president of business development August Sick, "everybody will be doing it in the next five years."

Academic centers also feature in partnerships. Thus BD Biosciences Clontech recently established a collaboration with the Harvard Institute of Proteomics (HIP). "Under our agreement they will generate a clone collection of full length human genes cloned into our BD Creator gene cloning and expression system," says Imper. "We selected HIP as a partner of choice and are also talking with some European institutions."

Like her peers in other life science companies, Imper continually checks out partnership possibil-

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ities. "I'm hourly looking at what we can license in and how we can find synergy across the business in BD Biosciences," she says. "We first look internally to create new preclinical research products, and then look to universities and or small companies for further enabling technology that they want to license out or partner."

Signature BioScience has used partnerships to alter its business profile. "Over the last year we have been able to change our focus from an instrument company to a drug discovery organization," says David Spellmeyer, chief scientific officer and vice president, drug discovery. "We are focusing on delivering preclinical lead compounds. Customers come in with or without targets and or compounds. Our early deals are relatively small; they get larger later."

Spellmeyer advises firms to look for good personal chemistry in potential partners and to set up strong lines of communication when they sign their collaboration agreements. "Every one of our relationships involves a mechanism to work together at the science or engineering levels, with another group sitting above that at the management level to resolve conflicts," he says. "There is never perfect communication. But we worked through some issues with our partners because we had the mechanism to deal with them."

THE GLOBAL REACH

Forming partnerships requires plenty of preparatory work when the collaborators both come from the same country. But increasingly the life science business is going global. No longer do North America and Western Europe control the vast bulk of R&D in biotechnology. Today scientists in several third world nations undertake excellent research in the subject. "We believe that every part of the world has world-class life scientists and companies," says Signature BioScience's Spellmeyer. "We want to work with the very best."

Entrepreneurs are ready worldwide to set up companies based on innovative advances. "The take-up times of biotechnology products in Brazil, Korea, and Taiwan has been reduced from five years to one because of the Internet," says Amersham Biosciences' Brown. "The first gene fully sequenced was that of a fruit pest in Brazil. Nowadays it's cheaper to do certain biotechnology work in China or Brazil than in, say, California."

Some governments have targeted biotechnology as the scientific wave of the future. Singa-

A Meeting of Drug Discovery Minds

For scientists and other members of the global drug discovery community who want to keep up to date with the field, Drug Discovery Technology™ 2002 World Congress will provide views of the cutting edges in science and business. Organized by **IBC USA Conferences**, the conference and exposition will take place from August 4 to August 9 at Boston's Hynes Convention Center.

The event will put particular emphasis on three aspects of drug discovery. Scientists from pharmaceutical firms will outline some of their most advanced projects. Several components of the meeting will detail the business side of drug discovery, including such issues as creating partnerships and negotiating deals. "They will highlight how business ideas help to accelerate the drug discovery process," says IBC's Michael Keenan. And a forum new to this year's congress will focus on the value of information technology. "The pharmaceutical industry is addressing the convergence of information technologies and life science," explains Keenan. "IBM, Hewlett-Packard, and Sun Microsystems will participate in the event along with representatives of pharma."

Other business-related themes of the event include a panel discussion organized by the National Cancer Institute to discuss partnering with the federal government and a session in which 40 emerging drug discovery companies will highlight their technologies. And a half-day session called Drug Discovery 101 will outline business fundamentals for scientists more comfortable in the laboratory than the boardroom.

For further details, you can consult the event's website, www.drugdisc.com. Alternatively, you can contact Michael Keenan directly at IBC USA Conferences, 1 Research Drive, Suite 400A, P.O. Box 5195, Westborough, MA 01581, telephone 508-616-5550 extension 288.

pore, for example, has set up a national initiative in the subject. "Biotechnology is clearly a focus of large investment by the Singapore government," says PerkinElmer's Cook. "We have already established our analytical instruments division there."

National initiatives aim to do more than attract overseas investments. "The focus in Asian countries is on building infrastructure rather than intellectual property," says Augen of IBM Life Sciences. "That will generate the growth of companies that build on intellectual capital."

As a result, suppliers to the industry must make their products available worldwide. "More and more companies are looking to standardize their purchasing and internal processes and at the same time looking for the higher quality equipment and support," says Eppendorf's Bülow. "To move very fast, companies must have access to product within 24 hours, wherever they are." Heritage of Tripos makes a similar point. "Most of our customers are operating multiple sites around the world," he says. "They're not going to go to a small company round the corner that will adapt a global solution locally and ramp it up." As Promega's Dimond points out: "Among companies our size and larger, all are international. Some smaller boutique companies can be localized. But when a company goes over \$50 million in annual sales, it really has to become international to be competitive."

SEQUENCING SYSTEMS

What products stem from the increasing emphasis on partnering and globalization? They run the gamut of the biotechnological world.

In genomics, for example, reagents and supplies, instruments, and computer software have developed over time from simple products such as a tube of Taq DNA polymerase to complete kits and systems for determining DNA sequences. Companies involved in this area include Amersham Biosciences, Applied Biosystems, Invitrogen, **New England Biolabs**, Promega, and **Roche Applied Science**. "Over half our sales are outside the United States," says Promega's Dimond. "It's absolutely essential to our business model to supply scientists globally."

The polymerase chain reaction (PCR) has played a continuing role in the advance of biotechnology. Manufacturers have continually improved Taq polymerase to yield better copy fidelity and enable longer copy runs. Most recently a "hot start" version of the enzyme has emerged that is designed to prevent Taq polymerase from amplifying DNA sequences at room temperature before the intended start of an experiment. Manufacturers have also developed microprocessor-controlled thermal cyclers to facilitate PCR work. Applied Biosystems offers many specialized units to handle small-scale applications as well as high throughput needs. Other

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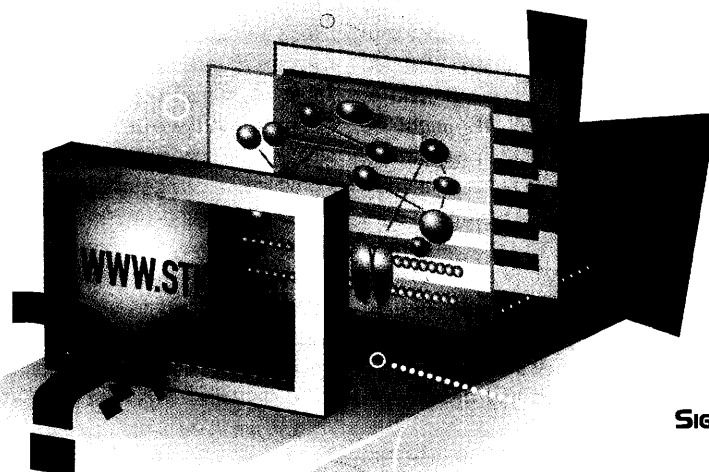
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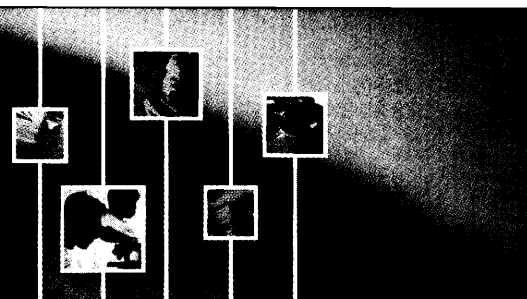
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Manual DNA sequencing used to be a laborious process with dubious reproducibility and accuracy. Recently, however, advances in instrumentation and software have resulted in highly automated DNA sequencing instruments that are almost error-free. Companies that specialize in sophisticated systems of this type include Applied Biosystems, **Beckman Coulter**, and **LI-COR**. These manufacturers collectively provide a range of systems for small-scale DNA sequencing to stand-alone systems for high throughput sequencing and genetic analysis. "We frequently get suggestions and proposals from our customers on improvements and additional items," says Pyrosequencing's Ekström.

Advances in products for DNA analysis and cloning include the development of pre-tested kits that contain virtually all the reagents needed for conducting this work. The PharMingen division of BD Biosciences, **BioVentures**, **Epicentre Technologies**, Invitrogen, Roche, and other molecular biology specialty companies provide these kits, which allow researchers with little experience in molecular biology to conduct experiments without having to spend many hours learning to optimize their own home brew systems.

DNA chips and microarrays represent another technology that reduces bottlenecks in the study of genes. Companies that offer the tools needed to make microarrays include **GeneMachines**, **Genetix**, **Hitachi Genetic Systems**, and **MWG Biotech**. With the advent of microarrays, researchers can study the properties of thousands of genes on a microscope slide in a single experiment. Microarray technology permits comparisons of levels of expression between genes in an organism's genome by hybridization of messenger RNA to its counterpart DNA sequence. Ready to use microarrays are also available. Among the suppliers: **Affymetrix**, Clontech, **Sigma-Genosys**, and Stratagene. **Azigen Bioscience** and **Operon Technologies**, meanwhile, offer custom microarray services.

PROTEIN PROBLEMS

However monumental the feat of sequencing any organism's genome, it pales in comparison with sequencing and cataloging all the proteins in a cell. Not only are proteins created by a complicated splicing process whereby one gene pro-

duces more than one protein. The proteins in cells change as the cell responds to different environments and states of health.

Complications bedevil work on proteins, from sample preparation and purification to image analysis. A key advance in the latter arena has emerged from BD Biosciences Clontech, in the form of reef coral fluorescent proteins. "There are five distinct colors: cyan, green, yellow, red, and far shift red," explains Imper. "They have been optimized for expression in eukaryotic and prokaryotic cells and for flow cytometry applications. The wide range of the initial peaks allows them to be differentiated by microscopy. They are useful in all sorts of high throughput applications and for *in vivo* protein detection and monitoring. We are offering flexible, user-friendly licensing." Other analysis methods are available from such companies as Amersham Biosciences, **Bio-Rad Laboratories**, and **Alpha Innotech**.

Mass spectrometry has also become an important tool in proteomics with its ability to identify individual proteins. Amersham Biosciences, Applied Biosystems, and **Micromass-Waters** offer these instruments. "We have focused on instruments that prepare proteins for mass spectrometry, the defining tool of proteomics," says Harry of Proteome Systems. "We're developing instrumentation and partnering with various groups to sample their instrumentation. We are working in this area with Sigma-Aldrich, Millipore, Shimadzu, and Thermo Finnigan."

Protein arrays represent another relatively new technology for studying proteins. They consist of large numbers of regularly arranged spots of elements that recognize a protein or proteins of interest. The elements might be antibodies or antigens, enzymes or substrates, or membrane receptors and ligands. This technique permits scientists to monitor a cell's metabolism and response to external stimuli. Any biological protein assay that uses a specific ligand-receptor interaction can be miniaturized into a protein chip or array format. Protein arrays are ideal for use in searching for pharmaceutically relevant targets and disease-specific marker proteins.

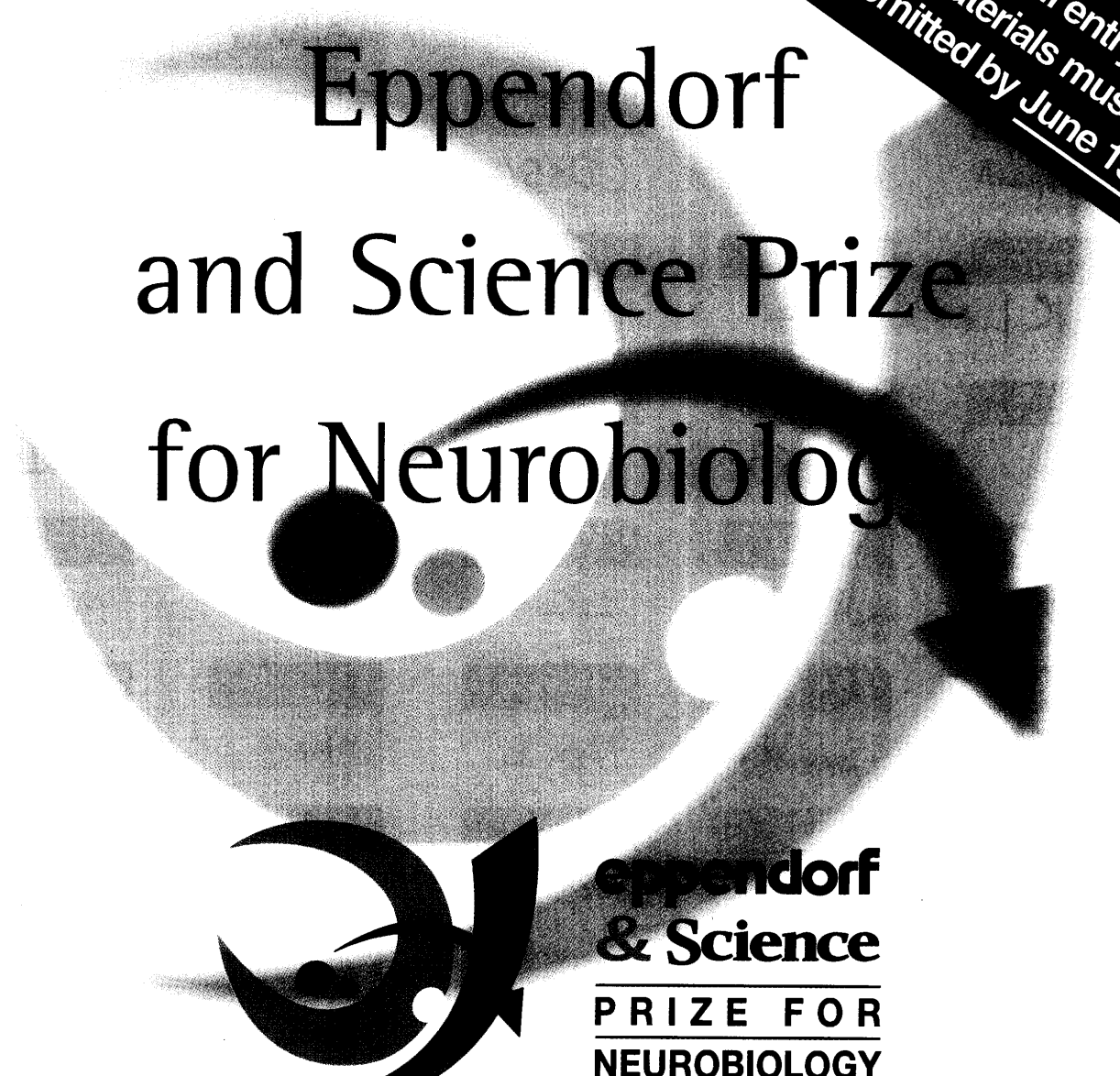
BIOINFORMATICS BOOM

It is in bioinformatics that partnering has become most evident in the biotechnology business. Bioinformatics firms have developed powerful and complex computer programs that allow the discovery of relationships between different DNA and protein sequences that otherwise may seem to be unrelated. But they have found that producing data alone does not guarantee commercial success. "The only pure bioinformatics company to succeed to date has been Rosetta, and that success was a testimony to its ability to marry bioinformatics to drug discovery," says Augen of IBM Life Sciences. That success convinced pharmaceutical company **Merck** to acquire Rosetta Inpharmatics, the parent of Rosetta Biosoftware, last summer. "Merck is one customer of ours," says Bassett. "We also deploy and deliver software on a daily basis to dozens of organizations, many of whom are Merck's competitors."

Several bioinformatics companies offer suites of software programs for genomics research. Providers such as **Accelrys**, **LION**, and **Spotfire** offer suites of programs that include BLAST searching and more. IT companies such as **Compaq**, IBM Life Sciences, and **Sun Microsystems** are developing systems that will allow life science researchers to perform their daily tasks without interruption. Not surprisingly, given the example of the speed of advance of the computer industry, new developments inevitably emerge just as researchers' computing tools seem about to reach their performance limits.

The future is bright for biotechnology organizations and the suppliers that provide them with the tools needed for their work. Researchers are teaming up to tackle problems and answer questions that would have been considered too complex to approach in the recent past. Biotechnology companies are now beginning to bring life-changing products to market after years of investment in R&D. And their partnerships with pharmaceutical firms and other collaborators should ensure that better products reach the market faster. "For people who understand how to integrate novel IT-based and knowledge management-based drug discovery technologies into commercially attractive platforms," says Frost & Sullivan's Followwill, "there are huge opportunities."

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



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EDUCATION

- 1996 Ph.D, Graduation Date: June 31, 1997
Department of Immunology - Cornell University Medical College
Memorial Sloan-Kettering Cancer Center
- 1990 Bachelor of Science, Department of Biochemistry, University of Massachusetts

AWARDS AND HONORS

- 1990-present Research Fellowship from the Graduate School of Cornell University
- 1990 Magna Cum Laude
- 1987-1990 Dean's List
- 1986 John Danforth Leadership Award

PUBLICATIONS

1. John Doe, Gustave Hall, and Soosity Rapparell. Coordinate Regulation of IL-2 Gene Expression. *Complex. Molecular Immunology*, Vol. 66, No. 11/12, pp. 490-511, 1998.
2. John Doe and Soosity Rapparell. Identification of Alternatively Spliced Transcripts in the Lymphocyte Syndrome Patient. [In Preparation]

REFERENCES: Available upon request.

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POSITIONS OPEN

EPIDEMIOLOGIST AND STAFF POSITIONS Center for Environmental Health Sciences (CEHS)

Department of Pharmaceutical Sciences
The University of Montana

The Department of Pharmaceutical Sciences is seeking applications for an Epidemiologist and one Staff Scientist. The successful candidates will be core members of the CEHS (website: <http://www.umt.edu/cehs>) within the Department. The CEHS is continuing to expand in the areas of molecular mechanisms of respiratory and immunotoxicology as well as human epidemiological studies. Applications for both positions will be reviewed starting June 21, 2002, and will continue until the positions are filled. The University of Montana is located in the Western Montana Rocky Mountains with easy access to Glacier and Yellowstone National Parks.

EPIDEMIOLOGIST: RESEARCH ASSISTANT PROFESSOR. The CEHS is seeking an Investigator to take advantage of existing research activities in an asthma registry, autoimmune diseases, genetics of chronic respiratory diseases, and lead toxicity as well as bringing additional current personal interests. A start-up package is available and extensive core facilities and staff are in place to complement the new hire. Requirements are a Doctoral degree (M.D. and/or Ph.D.), strong record of research accomplishments, and potential for research funding. Send letter of application, curriculum vitae, statement of research goals, and three letters of reference to: **Andrij Holian, Chair, Epidemiology Search Committee, Department of Pharmaceutical Sciences, The University of Montana, Missoula, MT 59812. Telephone: 406-243-4018; FAX: 406-243-2807; e-mail: aholian@selway.umt.edu.**

STAFF SUPPORT SCIENTIST: The CEHS is seeking a Staff Scientist to run a newly established, state-of-the-art Imaging and Histology Core Facility (IHCF). Responsibilities for the IHCF will include maintaining and overseeing the core equipment including the confocal microscope, the laser scanning cytometer, and other microscopes and imaging equipment. The successful candidate will be expected to participate in the research programs of faculty within the Department as well as assist other Investigators across campus in developing research protocols that utilize the IHCF. This is an exciting opportunity for a Master's- or Ph.D.-level Scientist to participate in a rapidly expanding center and department with research focus areas in toxicology, neuroscience, cardiovascular disease, and medicinal chemistry. Some experience in histology, immunocytochemistry, or imaging is required. Contact: **Diana Lurie; e-mail: lurie@selway.umt.edu.**

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FACULTY POSITION

AAV Gene Therapy, Stanford University

The Program in Human Gene Therapy and Molecular Genetics in the Department of Pediatrics at Stanford University School of Medicine is seeking an academic Scientist. The position is at the **ASSISTANT PROFESSOR (RESEARCH)** level. Requirements include the M.D. and/or Ph.D. degrees and training in AAV biology.

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H. Eugene Hoyme, M.D.
Professor and Chief
Division of Medical Genetics
Associate Chair for Academic Affairs
Department of Pediatrics H-315
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Stanford University is committed to increasing representation of women and members of minority groups among its faculty and particularly encourages applications from such candidates.

POSITIONS OPEN

TENURE-TRACK POSITION IMMUNOLOGIST The University of Montana

The Department of Pharmaceutical Sciences is seeking applications for an Immunologist: **ASSISTANT** or **ASSOCIATE PROFESSOR**. The successful candidate will be a core member of the Center for Environmental Health Sciences (CEHS) (website: <http://www.umt.edu/cehs>) within the Department. A nationally competitive start-up package is available in a research group with extensive core facilities. The CEHS is continuing to expand in the area of molecular mechanisms of respiratory and immunotoxicology and is seeking an established Investigator in the field of respiratory immunology to complement the existing faculty. Current research areas are in immunotoxicology, autoimmune diseases, and chronic respiratory diseases. Requirements are a Doctoral degree (M.D. and/or Ph.D.) and strong record of research accomplishments including active research funding and teaching interest. The University of Montana is located in the Western Montana Rocky Mountains with easy access to Glacier and Yellowstone National Parks. Send letter of application, curriculum vitae, statement of research goals and teaching interests, and three letters of reference to: **Andrij Holian, Chair, Respiratory Immunology Search Committee, Department of Pharmaceutical Sciences, The University of Montana, Missoula, MT 59812. Telephone: 406-243-4018; FAX: 406-243-2807; e-mail: aholian@selway.umt.edu.** Applications will be reviewed starting June 21, 2002, and will continue until the position is filled. *Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITIONS

Department of Pathology
Tufts University School of Medicine

The Division of Immunology in the Department of Pathology invites applicants for two tenure-track positions at the **ASSISTANT, ASSOCIATE, or FULL PROFESSOR** levels. While we are open to candidates with interests in diverse fields, we are particularly interested in pathogenesis, genetics of host resistance, signaling, innate immunity, and T cell immunology. Competitive start-up funds are available. The recruitment should complement and expand the existing strengths of the Division. A new research building is being completed that will house the whole immunology group. The anticipated date of occupancy is October 2002. Applications consisting of a letter of intent, curriculum vitae, a brief statement of research interests including future plans, and contact information for three references should be sent to: **Brigitte T. Huber, Ph.D., Chair, Immunology Search Committee, Department of Pathology, Tufts University School of Medicine, 136 Harrison Avenue, Boston, MA 02111. FAX: 617-636-0449; e-mail: brigitte.huber@tufts.edu.**

GENETICIST, TENURE TRACK Mercer University School of Medicine

The Division of Basic Medical Sciences is seeking an exceptional candidate to fill a tenure-track position at the **ASSISTANT/ASSOCIATE PROFESSOR** level in the area of human genetics. The successful candidate will participate in a medical genetics curriculum, which includes problem-based teaching during the preclinical years, and is expected to establish a strong, independent research program in medical or molecular genetics. Suitable candidates should possess a Ph.D. and/or M.D. with postdoctoral experience indicating potential for independent research. American College of Medical Genetics Board certification or eligibility is desirable but not required. A letter of interest, curriculum vitae, a brief statement of educational and research goals, and the names and addresses of three references should be directed to: **Dr. Robert Moon, Chairman, Division of Basic Medical Sciences, Mercer University School of Medicine, Macon, GA 31207.** Electronic applications may be submitted to **e-mail: moon_rj@mercer.edu.** *Affirmative Action/Equal Opportunity Employer/Americans With Disabilities Act.*

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RESEARCH FACULTY SCHOOL OF ALLIED HEALTH SCIENCES Medical College of Georgia

The Medical College of Georgia, the Health Sciences University of the State of Georgia, is currently developing research activities and opportunities at a rapid rate. Two tenure-track faculty positions are available in the School of Allied Health Sciences. The school is in the process of implementing a new organizational structure that will blend senior Researchers, junior research faculty, and teaching faculty to support the expansion of our existing research initiatives. We are looking for two senior-level individuals to provide leadership in research. Strong institutional support for research augments a variety of opportunities to establish collaborative relationships within the institution and community. Academic responsibilities will include teaching graduate and undergraduate courses. The candidates will have an earned Doctorate, demonstrated teaching excellence, and evidence of sustained scholarship in clinical outcomes research in patient populations served by the emerging Oncology, Cardiovascular, Neuroscience, or Geriatric Centers of Excellence.

The institution is located in Augusta, Georgia, home of The Masters and a short driving distance from the historical districts of Savannah, Georgia, and Charleston, South Carolina. Augusta's premier location provides easy travel to cultural Atlanta, scenic mountains, and the Atlantic coastline. For further information on our Institution and our School, please refer to our website: <http://www.mcg.edu>.

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Submit letter of interest, résumé, and three letters of reference to: **Dr. Joseph Cannon, Chair, Search Committee, Medical College of Georgia, School of Allied Health Sciences, AA-2028, Augusta, GA 30912-0100. Telephone: 706-721-2621; FAX: 706-721-7312; e-mail: jcannon@mail.mcg.edu.** Initial screening of applicants will begin May 31, 2002, but applications will be accepted until the position is filled.

The Medical College of Georgia is an Equal Opportunity/Affirmative Action/Americans With Disabilities Act Employer.

TENURE-TRACK POSITIONS University of Louisville

James Graham Brown Cancer Center

The James Graham Brown Cancer Center of the University of Louisville is in the process of a major program expansion in molecular and cell biology of cytokines with an emphasis on the role of chemoattractants in cancer. Current areas of interest include but are not limited to tumor metastasis, angiogenesis, and immunotherapy. Two tenure-track positions are available, one with an endowed chair for a **SENIOR INVESTIGATOR** and one at **ASSISTANT, ASSOCIATE, or FULL PROFESSOR** level depending on qualifications. Applicants must have an M.D. and/or Ph.D., significant postdoctoral research experience, and a strong publication record. Both will be expected to establish independently funded research programs. Successful candidates will join an active group of Investigators working on tumor immunotherapy, chemoattractant receptor regulation of inflammatory processes, molecular modeling of DNA and proteins, chemokines in stem cell biology, signal transduction, and oligonucleotide-mediated gene therapy. The Brown Cancer Center houses excellent shared facilities for molecular and cell biology including flow cytometry and cell sorting, molecular modeling, microarray, proteomics, surface plasmon resonance spectroscopy, and transgenic mice. Please send curriculum vitae with bibliography, a synopsis of research interests, and names and telephone/e-mail addresses of at least three references to:

Dr. Bodduluri Haribabu
James Graham Brown Cancer Center
University of Louisville
529 South Jackson Street
Louisville, KY 40202
Telephone: 502-852-7503
E-mail: h0bodd01@gwise.louisville.edu

POSITIONS OPEN

UNIVERSITY OF WISCONSIN MADISON

FACULTY POSITION Biological Mass Spectrometry University of Wisconsin-Madison

The University of Wisconsin-Madison has a tenure-track position available with research specialization in biological applications of mass spectrometry. The appointment is anticipated at the level of **ASSISTANT** or **ASSOCIATE PROFESSOR**. Areas of potential focus may include instrumentation development; functional and structural proteomics; metabolism; or other topics leading to the establishment of an independent, innovative, responsive, and highly competitive research program. The successful candidate will also be expected to advise graduate and postgraduate researchers in their area of expertise; develop and maintain extramural funding for their research programs; teach graduate and undergraduate courses (or develop new courses in their area of expertise as appropriate); and participate in faculty governance activities in the Department, college, and/or university. Future plans that will catalyze productive interactions among faculty and students and that will contribute to the wealth of biological research programs already present on campus are highly desirable. The individual hired under this initiative may have primary or joint faculty appointments in campus departments such as Biochemistry, Biomolecular Chemistry, Chemistry, Pharmaceutical Sciences, Pharmacology, or others. Deadline to ensure consideration is 1 September 2002. Candidates should submit a letter of application, statement of research and teaching interests, detailed curriculum vitae, and arrange for three letters of reference to be sent to: **Dr. Brian G. Fox, Chair, Interdepartmental Structural Biology Search Committee, Department of Biochemistry, University of Wisconsin-Madison, 433 Babcock Drive, Madison, WI 53706-1544 U.S.A.**

The University of Wisconsin is an Equal Opportunity Employer and specifically invites and encourages applications from women and minorities. Note: Unless confidentiality is requested in writing, information regarding the applicants must be released upon request. Finalists cannot be guaranteed confidentiality.

ASSOCIATE RESEARCH CHEMIST (medicinal chemistry, Aventis Pharmaceuticals, Bridgewater, New Jersey). Prepare and submit potential drug substances with requisite purity for biological evaluation as part of a multidisciplinary drug discovery team. Acquire and maintain a thorough knowledge of chemical reagents and reaction conditions and optimization techniques for the synthesis of intermediates and target compounds in drug discovery programs using modern solution phase and solid phase methodology. Design practical synthetic routes to a given target molecule and select appropriate reagents and conditions to carry out the synthetic objectives assigned utilizing high-throughput synthesis paradigms. Acquire and interpret proton and carbon nuclear magnetic resonance spectra. Make structural determinations from NMR, IR, MS, and elemental analysis data on materials from drug discovery projects. Utilize GC, HPLC (analytical and preparative), flash chromatography, TLC, crystallization, and other separation techniques. Maintain accurate records of research. Requirements: B.S. or M.S. in organic chemistry or chemistry; one year of experience in job offered or related occupation of Laboratory Technician, Intern, or Chemist in organic chemistry. Education and/or work experience must reflect background in multistep synthesis or purification and analysis (NMR, mass spectrometry) of organic compounds as well as knowledge of functional group interconversions, protecting group strategies, choice of reagents, retrosynthetic analysis, and the ability to trouble-shoot synthetic routes. Thirty-seven and one-half hour week; 9 a.m. to 5 p.m. Salary commensurate with experience. Résumé to: **Box Number 112, 1200 New York Avenue, N.W., Washington, DC 20005.**

POSITIONS OPEN

PUBLIC POLICY ANALYST Genetics and Public Policy Center Berman Bioethics Institute Johns Hopkins University

The Genetics and Public Policy Center in Washington, D.C., is searching for an outstanding individual to serve as Public Policy Analyst. The Analyst will conduct research on policy and legal aspects of reproductive genetics; interpret studies bearing upon reproductive genetics policy issues; work with project director and reproductive genetics advisory group to develop policy analyses and policy options to guide decisions about the development and use of reproductive genetics; serve as key advisor on all public policy issues related to genetics; work closely with project director to develop all necessary materials for reproductive genetics advisory group; work with key policymakers and their staff to ensure their understanding of reproductive genetics policy issues; prepare policy papers, reports, talking points and other documents; and track and analyze existing and proposed federal and state legislation and regulation of importance to the Center; analyze the effects of existing, new, and proposed federal and state legislation; and anticipate trends and identify potential issues in reproductive genetics.

Requirements: Ph.D. or J.D. plus five years of experience; demonstrated excellence in strategic planning, health or science policy analysis and implementation, and analysis of national legislative initiatives concerning reproductive genetics issues; mastery of federal legislative and regulatory affairs and the federal legislative process as related to health policy and biomedical research; in-depth knowledge of the scientific and ethical issues involved in reproductive genetics; ability to establish effective relationships with federal and state, legislative, and regulatory policy-oriented personnel; outstanding writing and speaking skills.

We offer a competitive salary and excellent benefits in a drug- and smoke-free workplace. For consideration, please submit résumé and a cover letter indicating the appropriate requisition number. Mail to: **Johns Hopkins University, P.O. Box 3687, Scranton, PA 18505. FAX: 1-877-262-0646; e-mail: jhu@alexus.com; website: <http://jobs.jhu.edu>.** JHU is an Affirmative Action/Equal Opportunity Employer encouraging applications from women and people of color.

ASSISTANT PROFESSOR (MICROBIAL GENETICIST). The Department of Biology/Microbiology at South Dakota State University invites applicants for a tenure-track, 12-month, 70% teaching and 30% research appointment. Instructional responsibilities include molecular and microbial genetics and microbial physiology. Research responsibilities include development of an active research program and pursuit of extramural funding. Research should focus on the application of microbial biotechnology to food safety, biomass conversion, waste management, microbial systems processing, or other related areas. Earned Ph.D. in genetics, microbiology, or closely related area. Effective teaching experience or potential, effective interpersonal relations, written and oral communication skills, and evidence of research capability required. Candidates with a background in molecular microbial or bacterial genetics and experience in the areas of food safety or biotechnology will be given preference. Preference will also be given to candidates with demonstrated ability in the application of information technology in teaching. Send letter of application; curriculum vitae; separate statements of teaching and research interests; and transcripts of all the higher education institutions attended and have three current letters of professional reference sent by June 30, 2002, to: **Dr. Yang Yen, Chair of Search Committee, Department of Biology and Microbiology, South Dakota State University, NPB252, Box 2140D, Brookings, SD 57007. Telephone: 605-688-5493.** Call or write for additional information. SDSU is an Affirmative Action/Equal Employment Opportunity Employer and encourages applications from women and minorities. Americans With Disabilities Act accommodations: Telephone: 605-688-4504; TTY: 605-688-4394.



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Senior Research Scientist, Insect Target ID

Requires a PhD in biochemistry, molecular biology or genetics and 2+ years of post-doctoral research experience in molecular biology and/or molecular genetics. **Job Req 5352**

Senior Research Scientist, Neurobiology

Requires a PhD in neurobiology, biophysics or a related discipline and 2+ years of post-doctoral research experience in neurophysiology. Proficiency in electrophysiology is essential. **Job Req 5356**

Research Biologist, Nematicide Advanced Research

Requires a BS/MS in biology or a related field (with whole organism focus) and 2+ years of experience. A background with nematodes and/or plant diseases and coursework in nematology is desirable. **Job Req 5350**

Research Biologist, Advanced Testing

Ideal candidates will have a BS/MS in the biological or agricultural sciences (a BS/MS in entomology preferred) and 2+ years of experience. Knowledge of good laboratory practices, greenhouse and field procedures is essential. **Job Req 5359**

Research Biologist, Mode of Action/Biochemistry

Requires a BS and/or MS in physiology and/or biochemistry and 2+ years of post-graduate experience, including a background developing enzyme and tissue/cell culture-based assays. **Job Req 5358**

Research Biologist, Physiology/Pharmacokinetics

Requires a BS and/or MS in physiology and/or biochemistry and 2+ years of post-graduate experience, including a background in pharmacokinetics, insect physiology, biochemistry, insect biology and genetics. **Job Req 5353**

Research Biologist, Primary and Secondary Screening

Requires a BS and/or MS in entomology or a related field and 2-4 years of experience in a laboratory setting. Familiarity with insects and laboratory testing procedures is essential. **Job Req 5351**

Research Biologist, Metabolism

Requires a BS and/or MS in biochemistry, chemistry or molecular biology and 2+ years of post-graduate work. Experience in metabolism/analytical area is preferred. **Job Req 5381**

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POSITIONS OPEN

REPRODUCTIVE GENETICS DIRECTOR Genetics and Public Policy Center Berman Bioethics Institute Johns Hopkins University

The Reproductive Genetics Director will oversee the Initiative on Genetics and Human Reproduction for the Genetics and Public Policy Center. This position will direct development of policy analyses and policy options to guide decisions about reproductive genetics; oversee development of communications and educational materials; identify, educate, and engage key individuals and groups about the science of reproductive genetics and the associated ethical, social, legal, and religious issues; identify and oversee work of consultants commissioned to develop a comprehensive review and analysis of critical issues; direct and participate in outreach activities with opinion leaders, stakeholder groups, policymakers, and the media; direct the planning and organization of public opinion activities that assess public knowledge and attitudes about reproductive genetics. Depending on background/experience, the Reproductive Genetics Director may be eligible for a faculty position.

Requirements include Ph.D. or equivalent degree and a minimum of six years of experience; professional knowledge of the scientific, legal, and ethical principles, theories, and practices applicable to the analysis of human reproductive genetics; knowledge and experience in public policy in related area; ability to work with diverse groups on reproductive genetics issues; ability to plan and manage multiple projects involving complex administrative, scientific, and legal issues; ability to communicate effectively to diverse audiences about complex and controversial topics both orally and in writing; ability to manage and supervise a diverse, multidisciplinary staff.

We offer a competitive salary and excellent benefits in a drug- and smoke-free workplace. For consideration, please submit résumé and a cover letter indicating the appropriate requisition number. Mail to: **Johns Hopkins University, P.O. Box 3687, Scranton, PA 18505. FAX: 1-877-262-0646; e-mail: jhu@alexus.com; website: http://jobs.jhu.edu.** JHU is an Affirmative Action/Equal Opportunity Employer encouraging applications from women and people of color.

POSITION AVAILABLE ULTRAFAST LASER FACILITY DIRECTOR

The Center for Ultrafast Laser Applications and the Department of Chemistry at Princeton University invite applications for the position of Ultrafast Laser Facility Director. This is a senior position as a member of the professional technical staff.

Opportunities for independent and collaborative research (including co-Principal Investigator status on research grants) may be available. The ideal candidate will have a Ph.D. in chemistry, physics, or related optical science; a publication record in ultrafast laser technology; and broad research interests. Salary is commensurate with qualifications. Applications should be sent to: **Warren S. Warren, Department of Chemistry, Princeton University, Princeton, NJ 08544-1009. E-mail: wwarren@princeton.edu.** Applications received by June 30, 2002, will be reviewed for initial interviews. *Princeton University is an Equal Opportunity/Affirmative Action Employer.*

SENIOR RESEARCH ASSOCIATE

A full-time research position is available to study homeoprotein cofactors or Hox target genes (*Development* 128:4177-4188, 2001). Requirements include a Ph.D. The ideal applicant should be highly motivated and have expertise in transcription factor purification, protein expression in mammalian cell lines, and chromatography. Previous experience with mRNA isolation and gene microarray analysis will also receive high consideration. Salary will be commensurate with experience. Applicants should send curriculum vitae and the names of three references to: **Dr. Scott Stadler, Shriners Hospital for Children, 3101 S.W. Sam Jackson Park Road, Portland, OR 97201. E-mail: hss@shcc.org. Shriners Hospital is an Equal Opportunity Employer that maintains a drug-free workplace.**

POSITIONS OPEN

MEDTRONIC BAKKEN ENDOWED CHAIR CARDIOVASCULAR REPAIR University of Minnesota Medical School

The University of Minnesota Medical School seeks a distinguished, full-time tenured **PROFESSOR** for appointment to the Medtronic Bakken Endowed Chair in Cardiovascular Repair. This faculty position is supported by a major endowment from the Medtronic Foundation in recognition of Earl Bakken, inventor of the pacemaker and founder of Medtronic Corporation.

It is expected that the Chairholder will have a national/international presence in biological science and/or biomedical engineering. The Chairholder will direct a major research program in cardiovascular repair involving molecular, cellular, and animal studies potentially leading to human trials. The Chairholder will work in collaboration with the University of Minnesota Biomedical Engineering Institute, Stem Cell Institute, and Lillehei Heart Institute. Considerable involvement with the University's biomedical engineering programs (including teaching responsibilities) is also expected.

Primary responsibility of the Chair will be to lead research efforts. This will include the generation or use of cellular, molecular, and/or other biological/biomaterial therapies for cardiovascular applications such as the repair of damaged or diseased heart muscle or heart valves or tissue engineering of the coronary and peripheral vasculature and other specialized cardiovascular tissues. The Medtronic Bakken Chair will also be responsible for translating basic research studies into clinically suitable therapies. The department of tenure at the University of Minnesota may be either basic or clinical within the medical school and will be determined by the Chairholder's area of expertise. The Chair is expected to also hold a joint appointment in the Department of Biomedical Engineering in the Institute of Technology. The Chair will also hold membership in the University's Biomedical Engineering Institute, Stem Cell Institute, and Lillehei Heart Institute.

Candidates may have an M.D. or foreign equivalent and/or Ph.D. degree and hold a current faculty position in any of a variety of biomedical or engineering academic departments. Applications will be reviewed upon receipt and the position will remain open until filled. Interested applicants should submit a cover letter, curriculum vitae, statement of research interests and experience, and the names of three references to:

**Jeffrey McCullough, M.D., Chair
c/o Karen Paddock
University of Minnesota
420 Delaware Street S.E., C 680 Mayo
MMC 293
Minneapolis, MN 55455
Telephone: 612-626-5994
e-mail: paddo002@umn.edu**

The University of Minnesota is an Equal Opportunity Educator and Employer.

POSTDOCTORAL POSITION MICROBIAL BIODIVERSITY

A Postdoctoral position is available immediately in the Department of Microbiology at Arizona State University to study the biodiversity of microbes occurring naturally in biological soil crusts of U.S. Southwest arid lands. Studies will involve molecular fingerprinting of natural communities as well as enrichment, cultivation, and characterization of prokaryotes. Applicant must hold a Ph.D. degree in microbiology or allied biological science and should have demonstrable experience with molecular techniques of community fingerprinting and bacterial diversity. Send curriculum vitae, a statement of research interests, and names and addresses of three references to: **Professor Ferran Garcia-Pichel, Department of Microbiology, Arizona State University, Box 872701, Tempe, AZ 85287-2701.** Deadline is June 15, 2002; if not filled, every two weeks until search is closed.

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

POSITIONS OPEN

MOLECULAR NEUROSCIENTIST

The Ottawa Health Research Institute (Neuroscience) and University of Ottawa seek applications from neuroscience Researchers for a new initiative in brain recovery encompassing several **TENURE-TRACK EQUIVALENT** appointments. The successful applicants will possess a strong background in molecular neurosciences applied to clinically relevant research broadly relating to recovery from stroke and neurodegenerative diseases. Areas of particular research interest would include axonal guidance and synapse formation, transgenic/behavioral animal models of neuronal recovery, molecular electrophysiology and synaptic signaling, neural stem cells, and neuroimmunology. External funding has been received for a generous start-up package that will be made available to the successful applicant. The OHRI is a recently established institute of over 100 Investigators focusing on developing innovative approaches to address mechanistic aspects of cellular function. It is located on a thriving campus that includes basic medical science departments, the CHEO Research Institute, and two tertiary care hospitals. Please send curriculum vitae and a description of current and future research plans to: **Dr. A.M. Hakim, Director, Neuroscience Research, 451 Smyth Road, Ottawa, Ontario K1H 8M5 Canada.** Applications will be received until September 30, 2002.

According to Canadian immigration requirements, this ad is directed primarily to Canadian citizens and landed immigrants of Canada.

The Department of Earth, Ecological, and Environmental Sciences, a new and rapidly growing academic unit at The University of Toledo, invites applications for three **TENURE-TRACK FACULTY POSITIONS** (rank open) in microbial ecology, plant ecology, and plant physiology to complement existing strengths in hydrology, geology, and ecology. Successful candidates must have a Ph.D. and postdoctoral experience. They will be expected to have or develop an externally funded research program and participate in undergraduate and graduate instruction. Candidates will join an interdisciplinary team of Scientists focused on the Lake Erie basin and/or bioremediation research utilizing the University's new Lake Erie Research Center and Plant Science Research Center. Joint appointments in the appropriate centers are planned. These positions may begin in either January 2003 or August 2003 at the discretion of the successful candidates. Review of applications will begin September 1, 2002, and continue until the positions are filled. Salary, fringe benefits, and start-up funds are competitive. The Department offers B.S., M.S., and Ph.D. degrees. Applicants should submit curriculum vitae, descriptions of teaching and research interests, and the names and addresses of three references to: **Chair, Search Committee, Department of Earth, Ecological, and Environmental Sciences, Mail Stop Number 604, University of Toledo, Toledo, OH 43606-3390.** *The University of Toledo is an Equal Opportunity/Equal Access/Affirmative Action Employer and Educator. Minorities/Females/Veterans/Disabled are encouraged to apply.*

RESEARCH CHEMIST: \$16.15 per hour; 8 a.m. to 5 p.m. Monday through Friday. Will research wood composites, polystyrene, and lignin for study of adhesion strength in wood products. Ph.D. in chemistry, polymer science, or chemical engineering required with one year of experience in polymer surface activity, coatings, and composite adhesion. Submit résumés to: **NM DOL, 501 Mountain N.E., Albuquerque, NM 87102. J.O. Number NM1073341.**

POSTDOCTORAL POSITIONS are available to study signaling pathways triggered by tumor necrosis factor family members. Candidates should have experience in molecular cell biology, biochemistry, immunology, or gene knockout techniques. Salary ranges: \$29,000 to \$40,000 per year depending on experience. Send résumés to: **Dr. Hong-Bing Shu, National Jewish Medical and Research Center, Denver, CO 80206. FAX: 303-398-1396; e-mail: shuh@njc.org.**

The USDA, Agricultural Research Service is accepting applications for a senior scientist to head its **Proteomics Research Laboratory** in Ithaca, NY. The successful candidate should have a strong background in protein biochemistry and have experience in protein separation and analysis techniques, such as the generation and analysis of 2D-gels from complex biological samples, multidimensional liquid chromatography, and mass spectrometry for characterization of proteins. The candidate is expected to join ongoing collaborative projects within the ARS in plant and microbial functional genomics, adapt and extend high-throughput proteomics protocols, and direct a laboratory that includes an ABI 4700 tandem time-of-flight mass spectrometer. Preference will be given to applicants with a proven interest in interdisciplinary research projects, publications in an area relevant to proteomics, experience in supervision of research projects with staff and research students and effective project management skills. Salary is commensurate with experience (\$64,542 to \$99,150). Applicants must be U.S. citizens.

For more detailed information on this vacancy, visit <http://www.afm.ars.usda.gov/divisions/hrd/index.html> on the Internet. For information on the research program contact **Dr. Leon Kochian** (lvk1@cornell.edu). Applications must be marked **ARS-X2E-2267** and postmarked by June 10, 2002.

The USDA is an Equal Opportunity Employer. Women and minorities are encouraged to apply.

Advanced Tissue Sciences, Inc. is a leader in the development of tissue engineered products for transplantation, including cardiovascular applications. We are searching for a **Research Scientist / Senior Research Scientist**.

This position will be responsible for leading scientific studies in the development and support of cardiovascular research projects to develop tissue engineered products for Angiogenesis, Tissue Engineered Vascular Grafts and generation of heart tissue.

Required:

- Ph.D. degree in cell or molecular biology, physiology, bioengineering, or related field. A minimum of two years of postdoctoral experience is required for Senior position.
- Demonstrated experience in cardiovascular biology and in cardiovascular and vascular model systems.
- Knowledge of vascular cell biology, endothelial cell growth and physiology, as well as angiogenesis, vascular prostheses and appropriate animal model systems.
- Working knowledge of molecular biology (Western, PCR, gene arrays).
- Experience in cell and tissue culture, with the ability and experience in leading and performing experimental research for basic science and/or product development.
- Ability to work effectively in a team environment.

Application can be sent to:

**Advanced Tissue Sciences, Inc.
Human Resources**

Fax: (858) 713-7430

E-mail: jobs@advancedtissue.com

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Senior Research Scientist/ Principal Research Scientist (Req. Code: 02-0001097)

We are looking for a scientist who has substantial expertise in the area of viral or microbial pathogenesis with a focus on in vivo systems. The candidate will be expected to serve as an internal expert and work in collaboration with biologists from diverse disciplines to develop novel animal models applied to infectious disease pathogenesis and vaccine discovery. Extensive theoretical and hands-on experience in the development of animal models measuring clinically relevant outcomes and surrogates of antiviral or antibacterial immunity is required.

The qualified candidate should have a B.S. or M.S. degree with 15+ years of experience, or a Ph.D. with 10+ years of experience in drug discovery/pre-clinical research.

Research Scientist (Req. Code: 02-0001837)

In this position you will support the Immunobiology Research group by investigating the efficacy and mechanisms of antibody-mediated therapies. Qualified, highly-motivated individuals evaluate drug candidates in pre-clinical autoimmune and chronic inflammatory disease models, conduct laboratory research, contribute to the clinical development of products in a variety of immune-mediated inflammatory disorders, and conduct immunological assays. Experience with the following techniques is highly desirable: flow

cytometry, proliferation, cytokine production, and ligand-receptor binding assays. Experience with different animal models of immune and inflammatory diseases such as IBD, arthritis, and/or psoriasis would be an asset. Must be highly organized and capable of handling several projects simultaneously. Good interpersonal communication skills needed for communication of data.

Qualified candidates must have a Ph.D. with 0-2 years of post-doctoral training/Research Scientist experience.

Associate Scientist II/ Senior Associate Scientist (Req. Code: 02-0001572)

The successful candidate will conduct innovative research for the discovery and validation of novel infectious disease targets & vaccines. A strong background and technical expertise in cell biology and cellular immunology as they apply to the pathogenesis of infectious disease is required. Candidates must have direct experience with small animal models, viral cultures, and the development of anti-viral assays. Prior experience working with human peripheral blood cells and analysis of cell subsets by flow cytometry or similar techniques is also required. Basic molecular skills, including generation of recombinant cell lines, are desirable.

Qualified candidates must have a B.S. and/or M.S. degree with at least 7 years of post-graduate research or drug discovery experience.

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POSITIONS OPEN



SALES/CUSTOMER SERVICE. ABS is an established and growing bioscience company ([website: http://www.absbio.com](http://www.absbio.com)) with headquarters in Wilmington, Delaware. We are looking for an individual with a broad scientific background in the biological/pharmaceutical sciences to work in sales/customer service. A Bachelor's degree in biological sciences is a minimum requirement. Previous sales and marketing experience is not required. The ability to effectively manage multiple projects in a fast-paced environment is essential. The position requires extensive interactions with customers and potential customers as well as frequent travel. All applicants must have excellent communication skills and the ability to work well as part of a team. ABS offers a competitive salary, a full benefits package, and the opportunity for advancement for the right individual. Please send your résumé to: **ABS Inc., 701-4 Cornell Business Park, Wilmington, DE 19801.** E-mail: services@absbio.com.

ASSOCIATE CHIEF OF STAFF Research and Development

The Edith Nourse Rogers Memorial Veterans Hospital, Bedford, Massachusetts, seeks a full-time Physician to serve as Associate Chief of Staff for Research and Development. The functions of the position include administration of the facility's research and development programs and operations of the Research and Development committee and its subcommittees. Provides assistance to the facility's Investigators by providing advice and guidance in administration and technical matters, review of publications, scientific exhibits, and preparation of reports.

Responsible for the financial management of the research and development programs by preparing budgetary estimates. Administers funds, financial statements, etc. Academic appointment with Boston University School of Medicine will be available based on qualifications.

Interested and qualified candidates should submit a letter of interest, curriculum vitae, and three letters of reference to:

Gregory K. Binus, M.D.
Chief Medical Officer (11)
ENR Memorial Veterans Hospital
200 Springs Road
Bedford, VA 01730
E-mail: gregory.binus2@med.va.gov

The Center of Neurobiology and Behavior of Columbia University, College of Physicians and Surgeons, invites applications for a full-time **ASSOCIATE RESEARCH SCIENTIST** with expertise in the molecular basis of sensory-motor connectivity in the developing spinal cord. Candidates must have a Ph.D. degree and at least three years of postdoctoral experience in molecular genetics and developmental neurobiology. In order to ensure full consideration, applications must be received by September 30, 2002. Please provide curriculum vitae, a brief description of research interests, and contact information for three references to: **Thomas Jessell, Center for Neurobiology and Behavior, Columbia University, 701 West 168th Street, New York, NY 10032.** Telephone: 212-305-1531; FAX: 212-305-8473; e-mail: tmj1@columbia.edu. See our website: <http://cpmcnet.columbia.edu/dept/neurobeh/>.

Columbia University takes Affirmative Action to ensure Equal Employment Opportunity.

RESEARCH POSITIONS in molecular biology. A Research position is available at Department of Obstetrics/Gynecology at Stony Brook University. We are interested in the biologic activities of lefty, which has significant role in embryogenesis, implantation, and carcinogenesis. Candidate should have Ph.D. degree and experience in molecular biology. Send résumé to e-mail: tabibzadeh@bioscience.org; Telephone: 516-484-2831; website: <http://www.bioscience.org/services/available/position.htm>.

POSITIONS OPEN

RESEARCH ASSOCIATE

To direct hour-to-hour activities of a research laboratory focused on epithelial biology of intestinal epithelia as it relates to eukaryotic-prokaryotic interactions and to interactions between inflammatory cells and epithelial cells. Direction of technicians and Postdoctoral Fellows as well as direct participation in the projects would be necessary and thus a broad background in the above fields would be optimal. The laboratory will be transferring to Chicago summer 2002 and will be adjacent to other laboratories focused on epithelial biology of the intestine. The Principal Investigator has been active in the above areas for several years, is well funded via NIH, and will serve as Dean of the School of Medicine and Biological Sciences Division. Please send curriculum vitae with cover letter and direct two letters of reference to:

James L. Madara, M.D.
Dean, Division of the Biological Sciences and
the Pritzker School of Medicine
Vice President for Medical Affairs
The University of Chicago
5841 South Maryland Avenue, MC 1000
Chicago, IL 60637

Applications should be received by July 1, 2002. The University of Chicago is an Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.

DIRECTOR, Center for Obesity and Metabolism at the University of Chicago. A Physician-Scientist at the **ASSOCIATE PROFESSOR** or **PROFESSOR** level is sought to direct a new cross-Departmental Center. He/she will also recruit three to four new junior faculty members to complement existing research strengths in metabolism at the University. Significant resources have been made available to support this initiative. A strong research interest in insulin signaling, adipocyte cell biology, or neuroendocrine control of appetite is preferable. The Director and Faculty of the Center will also participate in the Committee on Human Nutrition and Nutritional Biology, which has an active graduate program. Teaching at the student, resident, and Fellow level will be an important component of the position. Please send résumés to: **Fredric E. Wondisford, M.D., The University of Chicago, 5841 South Maryland Avenue, MC 1027, Chicago, IL 60637.** The University of Chicago is an Affirmative Action/Equal Opportunity Employer.

ROGER WILLIAMS MEDICAL CENTER Boston University Affiliate

NIH-funded **POSTDOCTORAL POSITION** immediately available for an individual with experience or background in immunobiology and molecular biology to study targeting of human or murine T cells to lymphomas and solid tumors using bispecific antibodies. Experimental approaches will include T cell activation, production and evaluation of bispecific antibodies, signal transduction, Elispot analyses, and immune evaluation of patients receiving armed activated T cells. Individuals' experience in animal models and phage display are desirable. Send curriculum vitae and names and addresses of three references to: **Joseph Eastman, Director, Human Resources, 825 Chalkstone Avenue, Providence, RI 02908.** E-mail: jeastman@rwmc.org.

POSTDOCTORAL POSITION available immediately for motivated individual to define molecular mechanisms underlying responses to solute stress and cell volume change with emphasis on cells derived from kidney and brain. A variety of molecular genetic, biochemical, and physiological approaches are used in a productive, collegial environment. Substantial experience in techniques of molecular and/or cell biology is required. Please send curriculum vitae and contact information for three references to: **David M. Cohen, Nephrology, Oregon Health and Science University, PP262, 3181 S.W. Sam Jackson Park Road, Portland, OR 97201.** E-mail: cohend@ohsu.edu.

POSITIONS OPEN

STEM CELL GENE TRANSFER

POSTDOCTORAL POSITION in the laboratory of **Dr. J. Victor Garcia** to study *in vivo* gene transfer into human somatic stem cells. Immunology, molecular biology, and small animal handling experience necessary. Virology and flow cytometry experience desired. Strong written and verbal communication skills in English required.

Send letter of interest, curriculum vitae, and names of three references to: **Ms. Betty Sharp, University of Texas Southwestern, Division of Infectious Diseases, 5323 Harry Hines Boulevard, Dallas, TX 75390-9113.** E-mail: betty.sharp@utsouthwestern.edu. The University of Texas Southwestern Medical Center at Dallas is an Equal Opportunity Employer.

VISITING ASSISTANT PROFESSOR

The Biology Department at Clarkson University invites applications for a Visiting Assistant Professor for the 2002-2003 academic year. The teaching load will be nine contact hours per semester. Teaching responsibilities will include general microbiology, freshman biology, and upper-level courses in the successful candidate's area of expertise. Depending on the successful candidate's research area, there will also be facilities available to conduct research.

Clarkson University is a small, private technological university whose mission balances high-quality undergraduate and graduate education with excellence in research. Clarkson is located in a rural setting just outside the Adirondack Park with year-round outdoor recreational opportunities. Clarkson lies within minutes of three other universities and within two hours of Montreal and Ottawa, Canada, and Lake Placid, New York. Review of applications will begin immediately and will continue until the position is filled. Candidates should submit curriculum vitae, teaching statement, and three letters of reference to: **Dr. R. Dowman, Department of Biology, Clarkson University, P.O. Box 5825, Potsdam, NY 13699-5825.** E-mail: rdowman@clarkson.edu. Additional details about the Department may be found at website: <http://www.clarkson.edu/~biology>. Clarkson University is an Equal Opportunity/Affirmative Action Employer. Position Number 108-01.

POSTDOCTORAL POSITION available in the field of structural biology and solution NMR in Structural Biology Laboratories (SBL), National Cancer Institute, NIH. The research program at SBL offers an exciting opportunity for a highly motivated individual who seeks a career in structural biology/NMR spectroscopy. SBL is equipped with 500, 600, and 800 MHz spectrometers and is a member of the 900 MHz spectrometer consortium of NIH. Consideration will be given to candidates with strong background in physical chemistry and biophysics. Experience in NMR and/or various disciplines of biochemistry is a plus. Fellowship stipend is approximately \$34,000 or up per annum depending on experience and qualification. Applicants should send curriculum vitae and list of references to: **Dr. Yun-Xing Wang, Room 120/Building 538, NCI-Frederick, NIH, Frederick, MD 21702-1201.** E-mail: wangyu@ncifcrf.gov. NIH is an Equal Opportunity Employer.

DIRECTOR PROTEOMICS AND GENOMICS

A position as Director of Proteomics and Genomics is available at The Burnham Institute, Cancer Research Center, to head our facility for mass spectrometry, DNA arrays, and other technologies for molecular analysis of proteins and nucleic acids. The successful candidate must have a Ph.D. or equivalent degree, be skilled in proteomics and genomics approaches, and desire to develop and implement innovative new technologies. Send résumé, list of publications, and two letters of recommendation to: **Professor Tomas Mustelin, M.D., Ph.D.; e-mail: tmustelin@burnham-inst.org; website: <http://www.burnham.org>.** Equal Opportunity Employer.

Senior NMR Spectroscopist _{m,f}

We are an international leading company in biotechnology, plant protection, seeds and pest control. For our team in Product Analysis at our site in Frankfurt we are looking for a scientist – temporary until 30.09.2003.

Your task is to devise, develop and use NMR methods to support research, development, registration and marketing of agrochemical products. The main accountabilities are:

- Guarantee the quality of the service delivered by the NMR lab
- Develop innovative analytical strategies in the line with customers goals
- Responsibility for carrying out

spectroscopic studies on agrochemical compounds

- Ensure that all work is carried out safely, efficiently, cost effectively and in a technically sound manner to meet agreed deadlines
- Supervise and train junior staff and ensure that the quality of work is adequate for the intended purpose and will meet Good Laboratory Practice (GLP) and Government Agency requirements
- Provide an expert knowledge in

NMR and advise project groups or customers

Your qualifications:

- PhD in Chemistry or equivalent training and experience
- 2 years (minimum) experience in NMR
- Sound knowledge of Chromatography
- Ability to work in multidisciplinary teams
- Excellent communication skills

Are you interested? We look forward to your application with reference to your salary requirements and your earliest possible starting date. Please send your application to our consultancy company.

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UNIVERSITY OF MASSACHUSETTS MEDICAL SCHOOL

DEPARTMENT OF MOLECULAR GENETICS AND MICROBIOLOGY

► Bacterial Pathogenesis - Faculty Position

The Department of Molecular Genetics and Microbiology invites applications for a tenured or tenure-track faculty position in the field of bacterial pathogenesis. An outstanding record of achievement in research is expected, as is a commitment to excellence in teaching.

The University of Massachusetts Medical School (<http://www.umassmed.edu/>) is experiencing rapid growth in all academic programs and is in the midst of a five-year expansion that will add more than 100 new research faculty members. Superb resources, a generous start-up package, and recently renovated space will be provided to the successful candidate. A joint clinical appointment in infectious diseases or a related discipline is possible for individuals with clinical training.

Applications should include a Curriculum Vitae, a brief statement of research accomplishments and interests, reprints of selected publications (not to exceed three), and the names, email address and telephone numbers of three individuals whom the applicant has asked to send letters of reference.

Send application to: Chair, Bacterial Pathogenesis Search Committee, Department of Molecular Genetics and Microbiology, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655-0122.



University of Massachusetts Medical School is an Equal Opportunity/Affirmative Action Employer.



POSTDOCTORAL POSITION Rochester, Minnesota, U.S.A

NIH funded postdoctoral position is available to study nicotinic acetylcholine receptor structure. The project focuses on determining the structure of the ligand binding domain of the receptor using protein chemistry, molecular modeling and structural determination. Seeking highly motivated applicants experienced in molecular biology, large-scale protein expression, protein chemistry and protein computational methods.

Salary will be determined by the successful candidate's experience. There is an attractive benefit package. Mayo Clinic is a not-for-profit organization. Mayo integrates research with clinical practice and education in a multi-campus environment. For further information please visit <http://www.mayo.edu/research/>.

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

Steven M. Sine, Ph.D.
Professor of Physiology
Physiology and Biophysics, 1-135 MS
Mayo Clinic, 200 First St. SW
Rochester, MN 55905
(507)-284-9404
sine@mayo.edu

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

POSITIONS OPEN

RECRUITING PROFESSORS/ RESEARCHERS

The Faculty of Dentistry
Université de Montréal

Dental diseases and orofacial disorders affect a large proportion of the population, and evidence is growing that there may be a relationship between oral health and other systemic illnesses. Consistent with the social and humanitarian stakes that dental medicine represents for health and society, the Faculty of Dentistry, the largest in Canada, is expanding its research team to better fulfill its mission. The Faculty has targeted fields for development that are consistent with the University's priorities in research and that address both current and future oral health needs. The recruitment drive aims to fill four tenure-track faculty positions among the following fields: (1) calcified tissue biology, (2) developmental biology, (3) tissue repair and engineering, (4) biomaterials and nanotechnology, (5) immunology and inflammation, (6) gene therapy, (7) public health, and (8) any other field within the priorities of the Faculty.

Eligible candidates must hold a Ph.D., have pursued postdoctoral studies, and have demonstrated their capacity for independent research. A dental degree (D.D.S., D.M.D., B.D.S.) would be an asset. Candidates will have to carry out leading-edge research and successfully compete for research grants. In addition, they will be expected to teach at the undergraduate and graduate levels and to supervise graduate students. Outstanding candidates could be eligible for the Canadian Chair of Excellence Program. Please send your curriculum vitae with a letter outlining your motivation; area of interest and skills in the field; and the names of three references no later than August 1, 2002, to:

Dr. Antonio Nanci
Associate Dean, Research
Faculty of Dentistry
Université de Montréal
P.O. Box 6128, Station Centre-ville
Montreal, Quebec H3C 3J7
Canada

These positions require knowledge of French language or a firm commitment from the candidate to acquire practical understanding of the language within two years of his/her arrival at the Faculty.

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. The University is committed to Equal Employment Opportunity for women.

COMPUTATIONAL CHEMIST

APT Therapeutics, Inc., is a VC-funded biotechnology company using protein engineering, protein informatics, and cheminformatics to develop novel proprietary human therapeutics. We are seeking an exceptional Computational Chemist to immediately join our cheminformatics team utilizing proprietary software to optimize highly promising drug leads. The successful candidates must have a Ph.D. in computational chemistry along with a minimum of three years of industrial experience. Demonstrated experience in small molecule drug design is preferred. Interested candidates should apply in writing together with detailed curriculum vitae and the names of two references to: **APT Therapeutics, Inc., 893 North Warson Road, St Louis, MO 63141. E-mail: apt@niduscenter.com.**

PROFESSIONAL RESEARCH ASSISTANT

to study kinases and lipid signaling in *Xenopus* cell division and fertilization. Working with students, assisting with teaching, and Ph.D. required; see website: <http://www.cudenver.edu/~bstith>. Review of applications will continue until the position is filled. Current curriculum vitae and names of three references to: **Dr. Bradley J. Stith, University of Colorado at Denver, Biology (171), P.O. Box 173364, Denver, CO 80217. Equal Employment Opportunity/Minorities/Women/Disabled/Veterans. Colorado Open Records Act applies.**

POSITIONS OPEN



ASSISTANT, ASSOCIATE, AND/OR FULL PROFESSOR OF DERMATOLOGY

The Department of Dermatology at the University of Pennsylvania's School of Medicine seeks candidates for an Assistant, Associate, and/or Full Professor in the tenure or nontenure research track. Rank will be commensurate with experience. Current research interests in the Department include differentiation, adhesion, embryological development, stem cells and signal transduction in epidermis and hair follicles; gene therapy targeting the epidermis and hair follicle; basic studies of autoimmune blistering; and rheumatologic diseases of skin, impetigo, and staphylococcal scalded skin syndrome proteases in skin physiology and pathophysiologic and immunologic studies of cutaneous T cell lymphoma. Candidates for the tenure-track position should be Board-certified in dermatology. For these candidates, there will be some patient care as well as resident, Fellow, and medical student education responsibilities. Interested individuals should send curriculum vitae, a brief statement of research interest, and three reference names to:

John R. Stanley, M.D.
Professor and Chair
University of Pennsylvania
Department of Dermatology
211 Clinical Research Building
415 Curie Boulevard
Philadelphia, PA 19104

The University of Pennsylvania is an Equal Opportunity Employer/Affirmative Action Employer. Women and minority candidates are encouraged to apply.

ASSISTANT PROFESSOR Cell Biology/Physiology

Ashland University seeks a full-time Assistant Professor for a one-year vacancy. Qualifications include a Ph.D. and ability to teach courses in cell biology and human anatomy and physiology and general introductory courses for both majors and nonmajors. Facilities are available for directing undergraduate research. Send letter of application, statement of teaching philosophy, curriculum vitae, transcripts, and three letters of recommendation to: **Cell Biology Search, Department of Biology/Toxicology, Ashland University, Ashland, OH 44805. Website: <http://www.ashland.edu>. Review of applications begins on June 14, 2002. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION to study thrombosis and quantitative coagulation factor genetics. Ph.D./M.D. Required experience in family-based genetic linkage and phylogenetic tree analyses, automated sequencing and multiple alignments for polymorphism detection, homology modeling, and promoter and mRNA stability analyses. Salary: \$40,000 to \$50,000. Curriculum vitae, three references to: **Dr. T. Howard, Emory School of Medicine, WMRB R7109A, 1639 Pierce Drive, Atlanta, GA 30322. E-mail: thoward@emory.edu.**

Fractal Systems, Inc. (Tampa Bay, Florida area), is seeking a senior **STAFF SCIENTIST** with a Ph.D. and experience in materials science, particularly in the field of conducting polymers or similar materials and related applications. The candidate should have excellent written and verbal communication skills. Send résumé to: **Dr. Matt Aldissi, Fractal Systems, Inc., 200 Ninth Avenue North, Suite 100, Safety Harbor, FL 34695. E-mail: maldissi@fractalsystemsinc.com; Telephone: 727-723-3006.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH POSITION

available immediately in the Neuroimaging Research Laboratory, Long Beach Veterans Administration Healthcare System, Long Beach, CA. We are a group of Investigators with broad interests who use behavioral, physiological, and neuroimaging techniques as needed for our research in cognitive or sensorimotor systems. We are looking for a recent Ph.D. to assist in and enhance current research programs in cortical neuroplasticity and motor learning. The successful applicant will have a Ph.D. in a relevant field, a background in physiological psychology or cognitive neuroscience, and be willing to learn MRI techniques in a hands-on environment. This is a career-path position with long-term possibilities. *U.S. citizenship is required.* Please send curriculum vitae and cover letter to: **Michael Lacourse, Ph.D., Long Beach VA Healthcare System, Neuromotor Rehabilitation Research Laboratory, 5901 East Seventh Street 151-J, Long Beach, CA 90822. FAX: 562-961-8017; e-mail: mlacours@csulb.edu.**

MAMMALIAN CELL BIOLOGIST

APT Therapeutics, Inc., is a VC-funded biotechnology company using protein engineering, protein informatics, and cheminformatics to develop novel proprietary human therapeutics. We are seeking a highly motivated Mammalian Cell Biologist to immediately join our protein engineering effort. Applicants must have a Ph.D. or M.D. degree with experience in mammalian cell culture and recombinant protein expression, preferably in a pharmaceutical industry setting. Experience with stroke or inflammation animal models is a plus. The ideal candidate will have a broad knowledge of mammalian cell biology and demonstrated proficiency in molecular biology. APT Therapeutics, Inc., offers highly competitive compensation packages. Interested candidates should apply in writing together with detailed curriculum vitae and the names of two references to: **APT Therapeutics, Inc., 893 North Warson Road, St Louis, MO 63141. E-mail: apt@niduscenter.com.**

POSTDOCTORAL POSITION University of Medicine and Dentistry of New Jersey

Robert Wood Johnson Medical School

Two NIH-funded Postdoctoral positions are available immediately for highly motivated individuals to study molecular mechanisms governing sensorineural development and diseases (see *PNAS* 98:1649; 94:9445; 93:11950; *Development* 128:2421; 127:3237; 125:3935). For more information, visit website: <http://www.cabm.umdj.edu>. Expertise in molecular biology and/or targeted gene disruption is required. We provide fruitful research environment and competitive salary. Send curriculum vitae and names of three references to: **Dr. Mengqing Xiang, Center for Advanced Biotechnology and Medicine, UMDNJ Robert Wood Johnson Medical School, 679 Hoes Lane, Piscataway, NJ 08854. E-mail: xiang@cabm.rutgers.edu.**

POSTDOCTORAL POSITION to study the mechanism of chaperoning by molecular chaperones/alpha-crystallins. Requires a strong background in protein biochemistry and molecular biology. E-mail curriculum vitae to: **Edathara C. Abraham, Ph.D., Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, 4301 West Markham Street, Slot 516, Little Rock, AR 72205. Telephone: 501-526-6088; e-mail: abrahamedatharac@uams.edu.**

Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION is available at Harvard Medical School to study molecular and cellular mechanisms of light-dependent protein translocation in photoreceptor cells. For further information, please see our recent paper (*Neuron* 33:95-106, 2002) or visit our laboratory website: <http://www.howelaboratory.harvard.edu/arshavsky.htm>. Please e-mail application to: **Dr. Vadim Y. Arshavsky; e-mail: vadim_arshavsky@meei.harvard.edu. Equal Opportunity Employer.**

focus on CAREERS

East Coast

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Siena Biotech is an innovative biomedical research company dedicated to unravelling common and rare human diseases and discovering drugs for their treatment. This start-up company, situated in the heart of Tuscany, has a number of open positions. We are looking for highly motivated individuals interested in working in a multidisciplinary and international environment to identify likely targets for drug intervention in the CNS and oncology areas. Prior experience in drug discovery and strong English language skills are desirable. We are particularly interested in individuals with expertise in the following areas:

BIOINFORMATICS

IT and database specialist (Job code B1): Responsible for maintaining computational infrastructure, including computer hardware, network, and software support. Also responsible for creating, maintaining, coordinating, and integrating biological databases, and assisting other scientists from a variety of backgrounds in the use of these resources. Candidates should have an advanced degree or equivalent experience in Computer Science or Information Technology. Background should include significant experience maintaining a heterogeneous computer environment, including experience with Solaris. Experience in the biotechnology or pharmaceutical industry, knowledge of the various public and proprietary biological databases, and familiarity with general database software would be highly advantageous.

Sequence analysis (Scientist, Job code B2, and Junior Scientist, Job code B3): Responsibilities include working with drug discovery teams, implementing and furnishing expertise in the use of standard approaches to sequence analysis and comparative genomics, including developing new methods when appropriate. Candidates should have an advanced degree or equivalent experience in Computational Biology, Bioinformatics, Computer Science, Biochemistry, Genetics, Molecular Biology, or related field. Background should include experience with the standard sequence analysis tools (sequence alignment, homology identification, HMMs, etc.), significant programming experience, and an understanding of the underlying biological and statistical aspects of bioinformatics.

Gene expression analysis (Scientist, Job code B4, and Junior Scientist, Job code B5): Responsibilities include applying and developing techniques for use of gene expression data in target discovery. Ideal candidates would have a Ph.D. in Computational Biology, Bioinformatics, Mathematics/Statistics, Computer Science or related field, and directly relevant experience. Background should include knowledge of the publicly available gene expression data, experience with the use and limitations of standard analysis techniques, and an exposure to and interest in newer approaches and methods. An understanding of the underlying biological and statistical issues is critical.

PROTEOMICS

Protein fractionation (Scientist, Job code P1): An experienced scientist with a Ph.D. in Pharmacology, Biochemistry, Cell Biology or a related biological discipline with at least three years of postdoctoral training is sought to work in protein target identification. Previous experience in protein analysis via two-dimensional electrophoresis is required. Candidates should be accomplished in protein purification techniques (FPLC or HPLC) and have an interest in developing strategies for the fractionation and enrichment of proteins using affinity and conventional chromatography.

Mass spectrometry analysis (Scientist, Job code P2): A scientist with a Ph.D. in Chemistry or Biochemistry and experience running and maintaining a LC-MS/MS or MALDI-TOF MS instrument is required. The candidate must also possess a documented expertise in the application of mass spectrometry to solving problems in protein biochemistry. Aptitude in the analysis of post-translational protein modifications would be an asset. Creativity in applying protein separation methods is also an essential component of this position.

Protein biochemistry (Junior Scientist, Job code P3): We are seeking a scientist with demonstrated skill in cDNA cloning, protein expression, purification and biological validation. Experience should include developing and applying techniques in molecular cloning and analysis of protein expression in cells or tissue. Candidate must be able to work independently, as well as participate in a growing team environment within a matrixed organization.

Cell and protein preparation (Research Technician, Job code P4): We are seeking a technician with 1-3 years full-time laboratory experience to support protein fractionation, purification and expression studies in the proteomics group. Experience with SDS-PAGE, Western blotting, immunoprecipitation or related approaches to protein study are expected. Additional responsibilities will involve general laboratory maintenance, including such tasks as inventory, ordering, buffer and reagent preparation. Must be responsible and organized, and capable of working within a rapidly growing team environment.

NEUROBIOLOGY

Neuronal Cell Models (Scientist, Job code N1): The ideal candidate will have a Ph.D. in neurobiology or a related area, and at least three years of post-doctoral experience. He/She will have demonstrable experience in the preparation and analysis of various neuronal culture models (cortical, hippocampal, cerebellar) as well as significant experience in the culture and manipulation of neuronal cell lines. Experience in viral-mediated gene transfer in primary neuronal cultures is also required. His/Her responsibilities will include the design and implementation of neuronal cell culture models to employ in the identification and validation of potential targets for novel therapeutics in neuronal dysfunction.

Cell Biology (Scientist, Job code N2): We are looking for an experienced scientist (Ph.D. and at least three years of post-doctoral experience) with a strong background in cell biology, and significant confocal microscopy experience in the context of pharmacological research. Demonstrable experience with cell culture and GFP technology are also required. Experience of standard molecular biological techniques would also be desirable. His/Her responsibilities will include the design and implementation of single-cell analysis methodologies to contribute towards the validation of potential targets for novel therapeutics in neuronal dysfunction.

Signal Transduction (Scientist, Job code N3): An experienced scientist (Ph.D. and at least three years of post-doctoral experience) is sought with a strong background in the analysis of signal transduction, preferably in the context of neuronal cell models. He/She will have demonstrable experience in the analysis of protein phosphorylation in the context of signal transduction, as well as significant experience in second messengers analysis. Significant experience in cell culture and of standard molecular biology techniques is also required. As part of the group, he/she will be responsible for the experimental design and implementation of signal transduction analysis towards the validation of potential targets for novel therapeutics in the CNS area.

Functional Assays (Scientist, Job code N4): A scientist is sought with experience in cell culture and reporter gene assays (luciferase). A demonstrable background in the transfection of cell lines (transient and stable) and the employment of luciferase reporter technology for signal transduction studies is required. Knowledge of standard molecular biological techniques is desirable.

Molecular and Cell biology (Research Technician, Job code N5): A candidate with at least 1 year's laboratory experience in a relevant discipline is sought to support molecular biology and cell culture activities within the group. Additional responsibilities will involve routine laboratory maintenance, including such tasks as inventory, ordering, buffer and reagent preparation. Must be responsible and organized, and capable of working within a rapidly growing team environment.

Candidates should send resumes, clearly indicating the job code for the position to which they are applying, to: adarminio@sienabiotech.it or Anna D'Arminio, Siena Biotech S.p.A., Via Fiorentina 1, 53100 - Siena, Italy. Closing date for applications is June 30, 2002. *Siena Biotech* is an equal opportunity employer.



NEW ENGLAND BOARD OF HIGHER EDUCATION

DIRECTOR OF EXCELLENCE THROUGH DIVERSITY PROGRAM

The New England Board of Higher Education (NEBHE) seeks an exemplary education professional to serve as its Director of Excellence through Diversity. The mission of NEBHE's diversity program is to increase the participation and retention of underrepresented populations in higher education, particularly in the science, mathematics, engineering and technology (SMET) disciplines. NEBHE is a non-profit, regional compact of the six New England states with a mission to increase the educational opportunities and services.

For more information about the agency, please visit our website, www.nebhe.org. To direct this important work, NEBHE seeks a professional with several competencies. Competitive candidates must have the optimal combination of:

- A Master's level degree and seven years academic service experience or equivalent combination of education and experience are required. Ph.D. and a background in STEM are preferred,
- experience with higher education environments including best practices in recruitment and retention, cultural diversity, affirmative action policies, and organizational change,
- extensive experience with higher education models and an understanding of primary and secondary education issues,
- program evaluation and policy research skills, and
- demonstrated experience with successfully securing and managing large grants from public, private and corporate foundations.

As a regional, non-degree granting organization that serves over 270 public and private educational institutions, NEBHE achieves its broadest and most comprehensive results in collaboration with many educational institutions. Hence, successful applicants will demonstrate:

- prior success with building collaborative networks oriented toward achieving measurable outcomes, and
- leadership, planning, management, coalition building, presentation, and supervisory skills.

The salary range for this position is \$60 – 75,000. NEBHE offers excellent benefits that include a 75% contribution to health & dental insurance, life & disability insurance, and a 10% employer match to the employee's TIAA-CREF retirement plan. NEBHE is an EEO/AA employer.

Please submit a cover letter, resume, and salary history to Phyllis Maguire, NEBHE, 45 Temple Place, Boston, MA 02111 or to pmaguire@nebhe.org.

GLOBAL OPPORTUNITIES

DIRECTOR

Center of Applied Science and Engineering Research Academia Sinica, Taipei

Academia Sinica, Taiwan, R.O.C invites applications and nominations for the position of Director of the Center of Applied Science and Engineering Research (CASER). The initial appointment is for a period of three years (renewable for a second term), and will also carry the title of Research Fellow.

Academia Sinica is the pre-eminent academic institution in Taiwan. It is devoted to basic and applied research in mathematics and physical sciences, life sciences, and humanities and social sciences. Since 1994, under the strong leadership of Nobel Laureate President Yuan T. Lee, the Academy has been positioning itself to move its research activities to the international level. Toward this end, CASER was founded in 1999 to conduct applied science and engineering research, develop platform technologies in strategic areas, promote interdisciplinary research, and establish research alliances between Academia Sinica, academic institutions, and the industrial community. Current research thrusts in CASER include nanoscience and nanotechnology, microelectro-mechanical systems, advanced materials, advanced electronics and optoelectronics, and internet-related technologies. Academia Sinica is presently also planning an international graduate program in "The Science and Technology of Nanostructures" in cooperation with the National Taiwan University and National Tsing Hua University. For details about Academia Sinica and CASER, please consult the website: <http://www.caser.sinica.edu.tw/>.

Interested candidates should have a Ph.D. degree, a distinguished record of academic scholarship, and diverse experience in university and professional service. He/she is expected to pursue a vigorous research program in one of the present intellectual thrusts of the Center or related areas. Resources will be available to reactivate the research program of the Director. The successful candidate will be expected to build on the existing strengths of the Center, develop new research thrusts, recruit outstanding faculty, and promote productive interactions with academic and industrial partners. We are seeking a scientist or engineer with strong leadership qualities and scientific vision, outstanding communication, administrative and managerial skills, demonstrated ability in managing multidisciplinary research programs, experience in motivating young scientists towards pursuit of excellence in scientific research, and a strong track record of interactions with industry and government laboratories.

CASER encourages both applications and nominations, which should include a full curriculum vitae, together with a publication list, and three letters of recommendation, to be submitted to **Chair, Director Search Committee, Center of Applied Science and Engineering Research, 128 Academy Road Section 2, Nankang, Taipei, 115, Taiwan**. Screening of applications/nominations will begin immediately, and will continue until the position is filled.

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**Department of Pharmacology
University of Minnesota Medical School
TENURE/TRACK POSITIONS
(Assistant Professor, Associate Professor, Professor)**

The Department of Pharmacology ([website: www.pharmacology.med.umn.edu](http://www.pharmacology.med.umn.edu)) at the University of Minnesota invites applications for tenure/track faculty positions at the rank of **Assistant Professor, Associate Professor** or **Professor**. Requirements for the Assistant Professor position include a Ph.D. in Pharmacology or other basic biomedical science, and/or an M.D. degree, and at least 2 years of relevant postdoctoral research experience. Applicants must have a strong record of research accomplishments, as documented by publications in leading peer-reviewed journals. Appointment as **Associate Professor** or **Professor** will be considered for applicants with professional distinction in published research, teaching and evidence of consistently attracting extramural funding for research. Appointment at these ranks must meet the qualifications established by the University of Minnesota and the Department of Pharmacology. Successful candidates will be expected to develop an innovative, competitive research program supported by extramural funding and to participate in teaching undergraduate, graduate and professional courses. Applicants using molecular, cellular or integrative approaches to study problems relevant to pharmacological sciences are encouraged to apply.

Applicants should indicate the rank for which they are applying and send their curriculum vitae, reprints of important publications, a brief statement of research plans and have three reference letters sent to: **Dr. Tim Walseth, Search Committee Chair, Department of Pharmacology, University of Minnesota, 6-120 Jackson Hall, 321 Church Street S.E., Minneapolis, MN 55455-0217.**

Review of applications will begin June 1, 2002. Positions will remain open until filled.

*The University of Minnesota is an Equal Opportunity Educator/
Employer and offers an excellent academic research environment.*

**Chief of a Newly Established
"Laboratory of Biological Modeling"**

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH) invites applications for a tenured position as Chief of the newly established Laboratory of Biological Modeling (LBM). LBM will be comprised of scientists who use computational approaches to understand biological systems. Specific areas of research interest will include: macromolecular biophysics; genomic/proteomic informatics; and regulatory networks. Excellent computational facilities and resources for rapid achievement of research goals are available. Applicants should have an outstanding record of research accomplishments and be equivalent to a tenured university full professor. He/she will be expected to formulate a plan for the development of LBM, provide intellectual and administrative leadership, and pursue an independent research program in one of the specific research areas. The position offers unparalleled opportunities for interdisciplinary collaboration within NIDDK and throughout NIH.

The Laboratory of Biological Modeling of NIDDK will be located on the main intramural campus of the NIH in Bethesda, Maryland, a suburb of Washington, D.C.

Interested applicants should send a Curriculum Vitae and a list of publications, a plan for LBM including research goals and organization, copies of five major publications, a summary of research accomplishments, a plan for future research, and three letters of recommendation to: **Dr. William A. Eaton, Chair, Search Committee, Laboratory of Chemical Physics, NIDDK, Building 5, Room 104, NIH, Bethesda, MD 20892-0520.**

NIH is an Equal Opportunity Employer



**MAKE A DIFFERENCE
UNIQUE TEACHING/RESEARCH
FELLOWSHIP OPPORTUNITIES**

The University of Kansas (KU) and Haskell Indian Nations University offer a number of three year, NIH-sponsored post-doctoral fellowships that involve 2/3's time research with a selected KU faculty member and 1/3 time teaching at Haskell (contingent on funding). The stipend is \$40,000/yr with some research supply/support included. The research portion of each fellowship involves cutting-edge investigational activities while the teaching part comprises specially designed pedagogical preparation, multiple mentorship and innovative teaching activities involving under-represented minority students. Desired candidates have a commitment to teaching/research careers at institutions that service large numbers of minority students.

Applicants from all biomedical areas such as biochemistry, molecular and cellular biology, the pharmaceutical sciences, engineering and psychology, among others are welcome. We especially encourage applications from scientists who are themselves members of under-represented minority groups although applications from anyone who is a US citizen or permanent resident with a commitment to research and teaching in minority-rich environments are welcome. All KU faculty are eligible to serve as mentors and potential research mentors can be viewed in the individual Department sections at the KU web site (www.ku.edu). Mentors can be contacted directly or applications can be obtained from **Russ Middaugh (Dept. of Pharm Chem, University of Kansas, 2095 Constant Ave, Lawrence, KS 66047)** or **Marigold Linton (Director, American Indian Outreach, University of Kansas, 250 Strong Hall, Lawrence, KS 66045)** with mentorship determined later. Telephone or e-mail inquiries are welcome (**Middaugh: 785-864-5813; middaugh@ku.edu; Linton: 785-864-4904; linton@ku.edu**). EO/AA

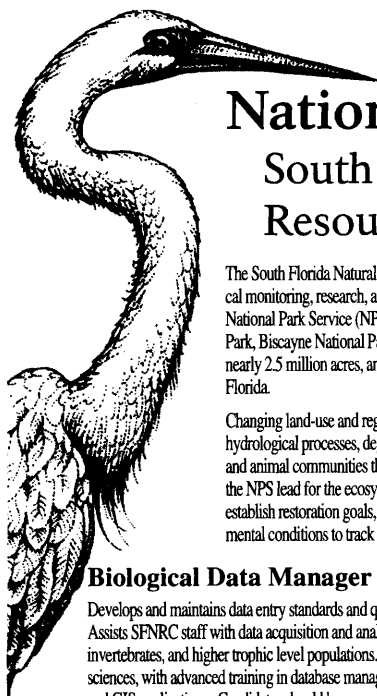
**FACULTY POSITIONS
DEPARTMENT OF BIOCHEMISTRY
UNIVERSITY OF IOWA
ROY J. AND LUCILLE A. CARVER
COLLEGE OF MEDICINE**

The Department of Biochemistry at the University of Iowa seeks highly qualified applicants for one or more tenure-track positions. The appointments will likely be made at the Assistant Professor level, although exceptional candidates at any rank will be considered. Salaries are competitive and will depend on qualifications and experience. Support for equipping laboratories and initiating research programs is excellent. Applicants with research interests in the broad discipline of biochemistry including molecular biophysics and cellular, developmental, or molecular biology will be considered. Quality of research, not a specific research area, will be the primary criterion.

Applicants must have a relevant graduate degree (Ph.D. and/or M.D. or equivalent foreign degree), and should have at least two years of productive postdoctoral experience and the potential to initiate and maintain a vigorous, independent research program. The new faculty will also participate in the departmental teaching programs including the training of undergraduate and graduate students, professional students, and postdoctoral fellows. Additional information about the Department, the University, and the Iowa City area may be found at **websites: <http://www.biochem.uiowa.edu/>, <http://www.uiowa.edu/>, <http://www.icgov.org>.**

Applications should include complete curriculum vitae and a summary of future research plans and should ask three scientists familiar with their work to write letters of reference. For full consideration the complete application should be received by July 1, 2002. Applications should be sent to: **John E. Donelson, Chair, Department of Biochemistry, Roy J. and Lucille A. Carver College of Medicine, University of Iowa, Iowa City, IA 52242-1109; phone 319-335-7934; fax 319-335-9570.**

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



National Park Service South Florida Natural Resources Center

The South Florida Natural Resources Center was established in 1978 to conduct ecological and hydrological monitoring, research, and natural resources management studies to guide the preservation of the four National Park Service (NPS) units in South Florida. Collectively these NPS units (Everglades National Park, Biscayne National Park, Dry Tortugas National Park, and the Big Cypress National Preserve) include nearly 2.5 million acres, and were established to preserve the natural and cultural resources of South Florida.

Changing land-use and regional water management practices over the last century have altered the natural hydrological processes, degraded water quality, and decreased the abundance and diversity of native plant and animal communities throughout South Florida. The South Florida Natural Resources Center serves as the NPS lead for the ecosystem restoration initiatives in South Florida, conducting scientific studies to establish restoration goals, evaluate the impacts of proposed management actions, and monitor environmental conditions to track long-term restoration success.

Biological Data Manager

Develops and maintains data entry standards and quality assurance protocols for biological research and monitoring programs. Assists SFNRC staff with data acquisition and analysis methods used in resource evaluations related to plant ecology, fish and invertebrates, and higher trophic level populations. Graduate level education is preferred or equivalent experience in biological sciences, with advanced training in database management in both Windows and Unix environments, and knowledge of statistical and GIS applications. Candidates should have experience in biological database management. (Homestead, FL)

Inter-disciplinary Project Managers

Responsible for developing and maintaining project management plans for the NPS/DOI role in south Florida ecosystem projects. These plans are used to define project goals and objectives, and track project schedules, staffing and resource requirements, and project deliverables. Coordinates project activities with DOI and outside agencies to assure that ecosystem restoration and management objectives are met. Graduate level education is preferred or equivalent experience in biological sciences, hydrology, or a related engineering field, and knowledge of project management methods, including the use Project Mgmt. software (MS Project and Primavera). (West Palm Beach and Homestead, FL)

Research Hydrologist

Conducts independent research in the developing field of eco-hydrology, hydrologic modeling, or stochastic hydrology. Participates in interdisciplinary assessments of ecosystem restoration projects. Graduate level education or equivalent experience in environmental sciences, hydrology, civil/environmental engineering, or a related field is desirable. Candidates should possess in-depth knowledge of wetland physical processes, computational methods, or advanced hydrologic data analysis techniques. (Homestead, FL)

Wildlife Ecologist

Leads a scientific program of wildlife population biology and ecology, focusing on wading birds, mammals and species of special concern, particularly as they are affected by water management actions and ecosystem restoration strategies. The position requires at least several years experience in the application of modern, quantitative approaches to population dynamics, and studies of productivity and reproductive success. A record of publication in the scientific literature is expected, and experience in wetland animal populations is preferred. Experience or demonstrated ability to work with a scientific team, including as supervisor of other scientists is desirable. (Homestead, FL)

Aquatic Ecologist

Performs technical assessments of aquatic ecosystem responses to water management actions, using databases on freshwater fish and invertebrate populations from the Everglades regional ecosystem. Interacts extensively with other ecologists, hydrologists and project managers in a multi-agency framework in order to define and evaluate progress towards ecosystem restoration targets for Everglades wetland ecosystems. The position requires a demonstrated understanding and relevant experience extending over several years or more in the application of scientific approaches to the analysis of aquatic populations and communities in response to environmental changes such as result from alterations of hydrological conditions in freshwater and brackish wetlands. (Homestead, FL)

Branch Chief- Biological Resources

Develops and implements a multi-disciplinary program in biological resources in support of the wildlife, marine, aquatic, and vegetation programs, as well as endangered species and exotic control programs. Graduate level education is preferred or equivalent experiences in the quantitative methods used in biological/ecological monitoring and research projects, biological data processing and database management, statistical analyses and GIS applications used in the biological sciences, and simulation modeling techniques. Candidates should have experience in wildlife and vegetation management, aquatic ecology, wetland and terrestrial ecology, and marine biology. (Homestead, FL.)



Please refer to <http://www.usajobs.opm.gov> for specific job announcement
Direct inquiries for job application to Human Resources Office: Phone# (305)-242-7720
Direct inquiries for specific job information to: SFNRC, Everglades National Park, 40001 State Road 9336
Homestead, Florida 33030, Phone # (305)-242-7800, Fax # (305)-242-7836
Visit our website at <http://www.sfnrc.ever.nps.gov>

National Park Service is an Equal Opportunity Employer. Applicant must be a United States Citizen in order to be considered. Vacancies are available in West Palm Beach and Homestead, Florida

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Chief, Laboratory of Molecular Toxicology

National Institute of Environmental Health Sciences
National Institutes of Health
Research Triangle Park, North Carolina

The National Institute of Environmental Health Sciences (NIEHS) (<http://www.niehs.nih.gov>) seeks a senior tenured investigator to direct the Laboratory of Molecular Toxicology (LMT) of the Environmental Toxicology Program, Division of Intramural Research.

The Challenge:

- Develop and maintain a strong intramural research effort in the general area of molecular toxicology, particularly as it relates to defining critical target pathways, genes and cellular mechanisms of target organ responses to environmental factors.
- Provide overall leadership for the existing principle investigators with the Laboratory of Molecular Toxicology who study a diverse array of toxicological processes including genetics, immunology, neurobiology, reproductive and developmental biology, as well as contribute to the efforts of the National Toxicology Program.
- Recruit talented investigators to the Laboratory of Molecular Toxicology and provide a focus for collaborations with the Institute.

The Candidate should be a senior investigator with an international reputation in a specific area within the broad context of molecular toxicology and its relationship to environmental factors/exposure. Preference will be given to candidates who emphasize neurodevelopmental biology/toxicology, neurodegenerative toxicology or reproductive biology/toxicology. The successful candidate will have an outstanding publication record, a proven history of research leadership and will demonstrate knowledge of human health issues and toxicology. In addition, the incumbent should possess a level of managerial and executive ability that will create an atmosphere for maximum creativity and scientific productivity of laboratory principle investigators.

Candidates must have an M.D., Ph.D. or equivalent degree in an environmental health science discipline. Excellent research support will be available. Salary is commensurate with experience and level of accomplishments and will range up to \$200,000. A recruitment bonus of up to 25% of base pay or a relocation bonus of up to 25% of base pay may also be available. For additional information, contact Dr. John Pritchard, Search Committee Chair, at (919) 541-4054. Applications from women and minorities are particularly welcome. Applicants should submit curriculum vitae, plan for future research program and arrange for three letters of recommendation to be sent to the address below by July 15, 2002. Material received after July 15, 2002, may be considered as needed.

Ms. Celestine Edwards (HNV-02-23)
NIEHS Human Resource Management Branch
P.O. Box 12233, Maildrop NH-01
Research Triangle Park, NC 27709
Phone: 919-316-4602; e-mail: edwards3@niehs.nih.gov



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Theodor Boveri Junior Group Leaderships (No. 50/2002)

in cancer research. The following research topics will be primarily considered: **signal transduction, cell biology, angiogenesis, tumor immunology, tumor virology, cancer prevention, molecular epidemiology, epidemiology, clinical oncology, genetic diagnostics, gene therapy, and molecular imaging.** Employment will be offered for a period of five years. Subsequent extension is possible. Applicants should have a strong background in the respective field and should have made already an important contribution to their area of expertise. Applications from female scientists are encouraged. Besides the position for the group leader, a postdoctoral position and technical assistance will be provided.

Interested candidates are requested to submit their application including CV, bibliography, references, and their concept for future research for the five years period

until June 30, 2002

to Professor H. zur Hausen, Wissenschaftlicher Stiftungsvorstand, Deutsches Krebsforschungszentrum, Im Neuenheimer Feld 280, 69120 Heidelberg, Germany.



**Diabetes Unit, Laboratory of Clinical Investigation,
National Center for Complementary
and Alternative Medicine, NIH**

Postdoctoral Positions in Laboratory and/or Clinical Research

Laboratory investigations focus on insulin signal transduction as it relates to metabolic and vascular actions of insulin (see *JBC* 276:30392-30398, 2001; *JBC* 276:3543-3549, 2001; *Circulation* 101:1539-1545, 2000). Several positions are available for scientists with M.D. and/or Ph.D. degrees and less than five years of postdoctoral experience. Molecular and cellular biology experience and a strong publication record are essential.

Clinical investigations focus on the role of insulin to regulate the interrelationship between metabolic and hemodynamic homeostasis (see *J. Clin. Endocrinol. Metab.* 85:2402-2410, 2000; *J. Clin. Endocrinol. Metab.* 86:5457-5464, 2001; *Circulation* 100:820-825, 1999). Future studies will explore areas relevant to complementary and alternative medicine approaches for the treatment of diabetes, obesity, and cardiovascular diseases. A position is available for a physician-scientist with clinical research experience.

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

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

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THE estate of Mr Lee Hiok Kwee has generously bequeathed a substantial donation to the Department of Biological Sciences of the National University of Singapore to establish the Lee Hiok Kwee Endowed Assistant Professorships.

The Department invites applications for the above positions. Preference will be given to candidates with specialisations in the one or more of following areas:

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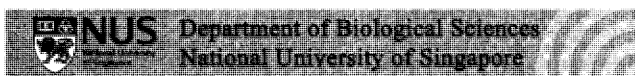
Outstanding individuals with postdoctoral experience and with strong commitment to research and teaching are encouraged to send their applications, supported by a curriculum vitae, a brief research plan and contacts of 3 referees to:

Professor Choy-L. Hew
Head, Department of Biological Sciences,
National University of Singapore,
Blk S2, 14 Science Drive 4, Singapore 117543
Fax: (65) 67795671
Email: gbshead@nus.edu.sg

Application forms can be downloaded from the website :
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Further information regarding the National University of Singapore can be obtained from:
<http://www.nus.edu.sg/> and that of Department of the Biological Sciences can be obtained from : <http://www.dbs.nus.edu.sg/>

Closing date for applications is 31 August 2002



PROTEIN BIOPHYSICS MOLECULAR BIOLOGY with ENZYMOLOGY CELL BIOLOGY with GENE THERAPY LIPOSOME FORMULATION with DRUG DELIVERY SYNTHETIC ORGANIC CHEMISTRY MOLECULAR MODELLING

postdoctoral research positions available in the Imperial College Genetic Therapies Centre (GTC)

The GTC is a leading interdisciplinary chemical biology research institute in the Chemistry Department at Imperial College. Six research positions are now available (two years in the first instance) in the above research disciplines. Areas of research covered in the GTC are the development of new self-assembly non-viral vector systems for nucleic acid delivery to cells, the chemistry of stress (including structure/function studies of proteins, biomolecular modelling & cellomics), and studies on the proteomic code (including functional genomics). The GTC is fully equipped with dedicated facilities for organic synthetic chemistry, NMR, CD and fluorescence spectroscopy, mass spectrometry, calorimetry, biosensing, nanoparticle characterisation, computer modelling/bioinformatics, biomolecule purification, and cell/tissue culture. In addition, the GTC has ready access to cryoelectron microscopy and X-ray crystallography installations at Imperial College. All positions are available with immediate effect; the closing date for applications is June 30th. Salaries will be set according to the standard academic pay scales in the first instance although rates are negotiable. Furthermore, there will be opportunities for consultancy arrangements with GTC spin-out companies and other incentivisations. If interested, please arrange for a complete CV and for two references to be sent to Ms Sumiko Martin, Imperial College Genetic Therapies Centre, Department of Chemistry, Flowers Building, Armstrong Road, Imperial College of Science Technology & Medicine, South Kensington, London, SW7 2AZ; tel: +44 20 7594 5869; fax: +44 20 7594 5803; email: sumiko.m@ic.ac.uk; www.gtc.ic.ac.uk.

ANNOUNCEMENTS

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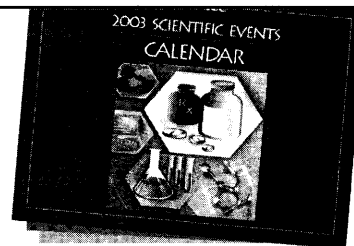
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Speakers:

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For full details contact:

In the U.S. Kathleen Clark
phone 202-326-6555
fax 202-289-6742
e-mail kclark@aaas.org

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FACULTY AND POSTDOCTORAL POSITIONS Neurobiology of Olfaction

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Ph.D. degree POSTDOCTORAL POSITION available immediately to study kidney vascular development and patterning. Primary focus is on cell and molecular aspects of VEGF system and directional endothelial cell migration. Training/experience in cellular and molecular biology techniques is required. Design and perform experiments using cell and molecular biology techniques including genotyping; cloning; cell culture; migration assays; and Northern, Southern, and Western analysis. Record and analyze data; prepare papers for presentations and publication. Order supplies and keep records of laboratory expenses. Send curriculum vitae and references to: Alda Tuffro, M.D./Ph.D. Pediatric Nephrology, University of Virginia School of Medicine, Department of Pediatrics, MR 4 Building, Room 2017, Box 800386, Charlottesville, VA 22908. Preferably e-mail: 4w@virginia.edu. *The University of Virginia is an Equal Opportunity/Affirmative Action Employer.*

Two POSTDOCTORAL POSITIONS open in vigorous and well-funded signal transduction research laboratory. Work will focus on the role of Jak tyrosine kinases and Stat transcription factors in progression of breast and prostate cancer. Preferred applicants will have experience and publications in cancer biology, molecular biology, and/or biochemistry. Salary will follow NIH guidelines and depend on experience. Highly motivated candidates are encouraged to send or e-mail application with a brief statement of research experience and interest, curriculum vitae, and contact information for at least two references to: Hallgeir Rui, M.D., Ph.D., Lombardi Cancer Center, New Research Building E504, Georgetown University, 3970 Reservoir Road, Washington, DC 20007. E-mail: ruih@georgetown.edu.

POSTDOCTORAL POSITION Mount Sinai School of Medicine

Mount Sinai School of Medicine has a Postdoctoral position available immediately to study molecular mechanisms involved in prostate cancer growth and angiogenesis. The candidate must have expertise in molecular biology. To apply, please send curriculum vitae and names and addresses of three references to: Dr. Alice C. Levine, Box 1055, Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029. E-mail: alice.levine@mssm.edu. *Equal Opportunity Employer.*

POSTDOCTORAL/RESEARCH ASSOCIATE position to study regulation of the growth hormone receptor (*J. Biol. Chem.* 34336, 1999; *J. Biol. Chem.* 22892, 2001) and a new insulin-like peptide (*Endo.* 458, 2000). Conditional knockout models a priority. Requirements: Ph.D. with experience in molecular cellular biology. Send curriculum vitae and three references to: Ram K. Menon, Children's Hospital, Pittsburgh, PA 15213. E-mail: menonr_2000@yahoo.com.

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP Genomic Enzymology

The Albert Einstein College of Medicine is initiating a Functional Genomics program whose mission is to characterize the functions of the thousands of proteins whose structures will emerge from the structural genomics initiatives over the ensuing decade. This is a unique opportunity to merge enzymology and genomic science. Candidates must have a strong structure/function background and the ability and vision needed to help create such a program. The structures are many and the opportunities are great; you will be extremely well positioned for a productive career in science. Please e-mail your curriculum vitae and three letters of recommendation to: Professor Thomas S. Leyh; e-mail: leyh@acom.yu.edu. *Equal Opportunity Employer.*

An NIH-funded POSTDOCTORAL POSITION available immediately to study the molecular biology of gastrointestinal cancer metastasis with a focus on Sp1 transcriptional regulation of angiogenic phenotype. Highly motivated individuals with experience in molecular biology and/or molecular genetics are encouraged to apply. Prior experience with mammalian tissue culture and small animal models is preferred but not required. Send cover letter, résumé, and the names of three references to: Keping Xie, M.D., Ph.D., Department of Gastrointestinal Medical Oncology-426, The University of Texas M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030. E-mail: kepzie@mail.mdanderson.org.

A POSTDOCTORAL POSITION is available in the Department of Obstetrics/Gynecology at the University of Iowa to investigate genes involved in the Na/K homeostasis and blood pressure regulation in mice. The successful candidate must have a Ph.D. or M.D. degree (or equivalent) and a background in cell biology and molecular biology. Experience in mouse physiology is desirable. If interested, please send curriculum vitae and names of three references to: Dr. Baoli Yang, Department of Obstetrics/Gynecology, The University of Iowa, Iowa City, IA 52242 U.S.A. E-mail: baoli-yang@uiowa.edu. *The University is an Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.*

Several POSTDOCTORAL POSITIONS are immediately available to study the pathophysiology of acute pancreatitis. These positions will be supported from recently funded NIH grants. Areas of research include signal transduction pathways, heat shock proteins, protease-activated receptors, and inflammatory mediators. Applicants should have a Ph.D. in biological sciences. Please send your curriculum vitae and names of three references to: Dr. Ashok Saluja, Department of Surgery, Harvard Medical School, Beth Israel Deaconess Medical Center, 330 Brookline Avenue, Boston, MA 02215. E-mail: asaluja@bidmc.harvard.edu.

POSTDOCTORAL FELLOWSHIP is available from September 2002 for two years characterizing electrical and Ca^{2+} signaling controlling prolactin secretion from fish pituitary cells in response to osmolality change (website: <http://www.pbrc.hawaii.edu/bekey/ian>). Ph.D. and experience in patch clamping required. Send statement of career goals, résumé, and names and e-mail or telephone contacts for three references to: Ian Cooke, Békésy Laboratory of Neurobiology, University of Hawaii, 1993 East-West Road, Honolulu, HI 96822. FAX: 808-956-6984; e-mail: ian@pbrc.hawaii.edu.

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GLOBAL OPPORTUNITIES

POSTDOCTORAL POSITION

Applications are invited for a position to study the role of tyrosine phosphatases in lymphocyte and mast cell signaling (website: <http://www.tmin.ac.jp/dept/immunology/index-e.htm>). Experience in molecular and cellular biology is required. This position is effective upon approval by the JSPS (website: http://www.jsp.go.jp/e-fellow/fellow_pd.html). The two-year tenure will start after April 1, 2003. Please submit curriculum vitae, description of research interests, and names of three references to: Dr. Hidetaka Yakura, Tokyo Metropolitan Institute for Neuroscience, Fuchu, Tokyo 183-8526, Japan. E-mail: yakura@tmin.ac.jp.

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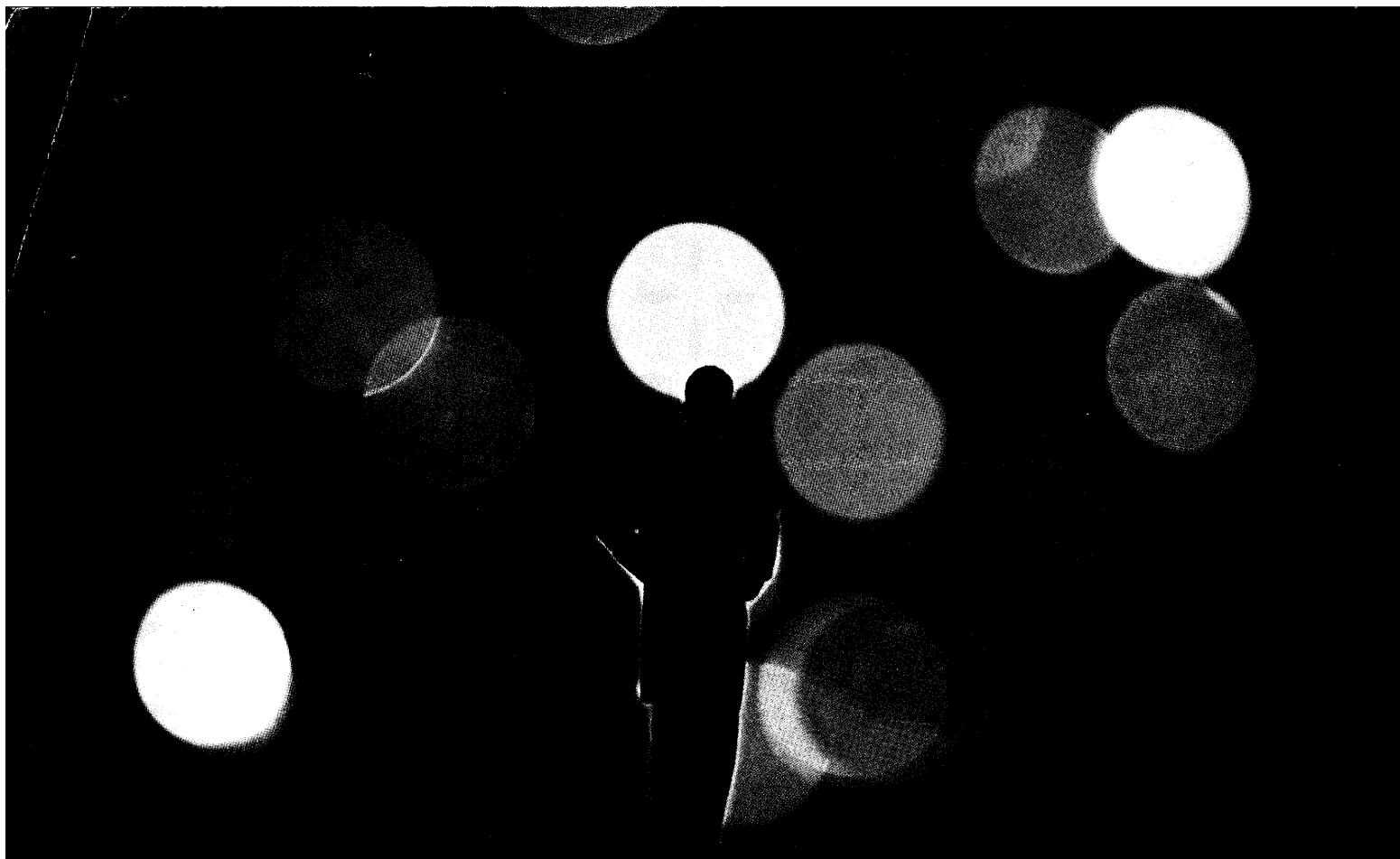
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