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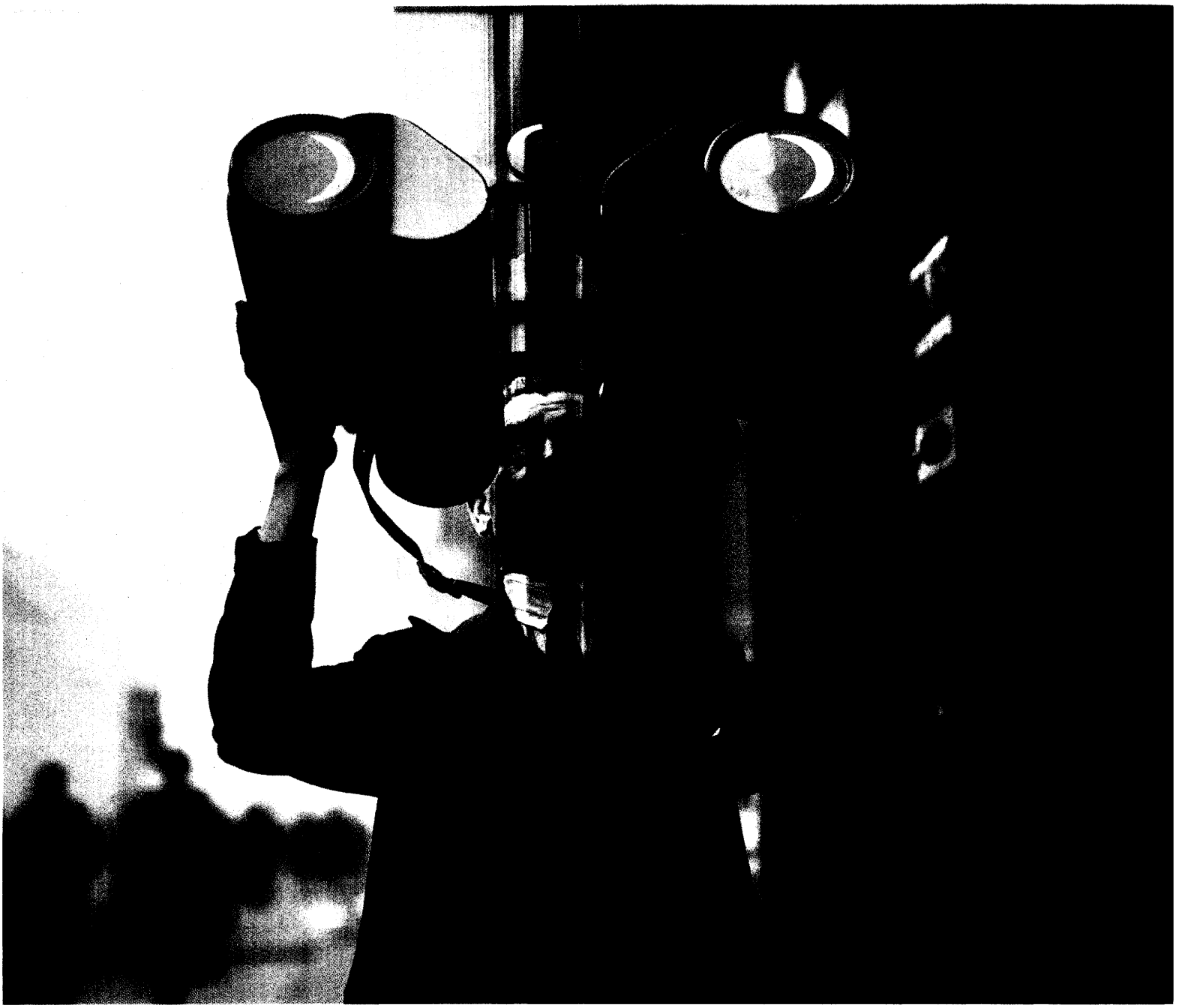

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—Sarah Goforth

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CONTINUED ON PAGE 2102

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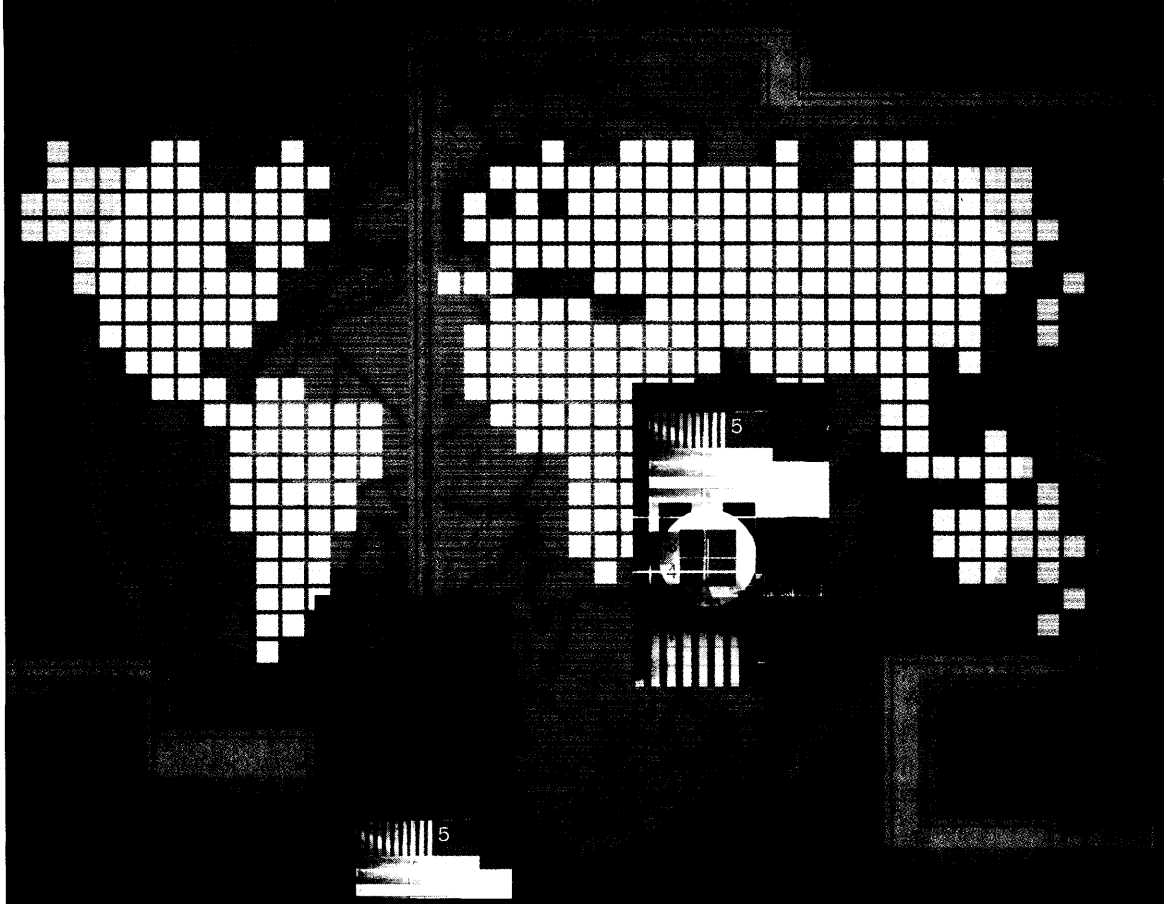

Successful genome sequencing has created new challenges for biotechnology. Start-up companies are springing up around the world to compete with established firms in developing the necessary tools, technologies, and modes of thinking.

BY PETER GWYNNE AND GARY HEEBNER

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BIOTECHNOLOGY ENTERS THE POSTGENOMIC ERA

THIS YEAR THE MATURING BIOTECHNOLOGY INDUSTRY FACES THREE CHALLENGES – one technological, one political, and one financial – that will determine the direction in which it develops. The first stems from the past year's successes in sequencing the genomes of humans and other organisms. Those results have opened up new opportunities for biotechnology and the organizations that pursue it. The second is the worldwide development of biotechnology companies, to nations with little experience in the area as well as those that have long traditions in life science. That diffusion also offers the strong promise of industrial expansion, although individual firms could suffer from the impact of aggressive overseas competition. The final challenge, over which the industry has little control, threatens to slow down the entire industry's growth. The financial downturn that has wreaked havoc with dot-com start-up companies in the United States has already shown signs of limiting investment money available to the life science sector. Several biotechnology firms have responded to the situation by focusing more than before on short-term plans to bring products to market and thus provide revenue streams.

Overall, analysts believe that the opportunities that have emerged from genome sequencing will far outweigh any deceleration caused by tighter money. "There is clearly a limitation of capital," says Alan Louie, manager of the applied biotechnology laboratories at consulting firm **Arthur D. Little**. "However, companies that have already obtained their money from funding vehicles are in better shape than start-ups. It's still possible to get new money, but you need a very strong model that the market will understand."

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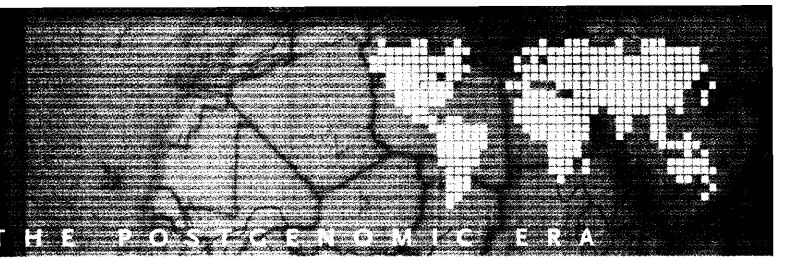

BIOTECHNOLOGY ENTERS THE POSTGENOMIC ERA

BUILDING ON GENOME SEQUENCING

The market is likely to understand any model that builds on genome sequencing. **Celera Genomics**, the company that carried out the commercial sequencing of the human genome, sees new possibilities as a direct result of the financial situation. "We were able to raise very substantial capital in the last round of financing," says president and chief scientific officer Craig Venter. "The economic downturn is a wonderful opportunity for us. We're in the midst of building a new diagnostic and therapeutics company based on the first principles of science, related to the sequencing of the human and other genomes."

Firms with a broad presence in the biotechnology business as well as those at the cutting edge see little threat from the present financial conditions. "The impact of the slowdown is quite patchy," says Andrew Carr, CEO of **Amersham Pharmacia Biotech**. "Companies based on one technology will always carry a large element of risk. Since we're a very broadly based company serving many aspects of the market, we don't see much of a problem."

As Carr sees it, two segments of the service arena seem likely to avoid financial problems. The economic situation does not appear to have affected the academic research market, which in any case stays relatively stable over periods of several years, he says. And the flurry of recent mergers in the pharmaceutical industry has created multiple opportunities for outsourcing to biotechnology companies with the appropriate technology.

Biotech firms that can't obtain conventional funding are looking for different ways to set up cash flow. "Small companies have to leverage their niches with progress in specific therapeutic areas, such as cardiovascular and oncology," says Louie. "They will have to have additional foundation research; if the tools get better, their lives will become easier." Another alternative is soliciting acquisition. "I get one or two proposals a day from companies that would like us to buy them or their technology," says Venter. "We spend a lot of time looking at buy-versus-build decisions."

THE INTERNATIONAL DIMENSION

Larger biotechnology companies are making decisions of that type around the globe. Today biotechnology knows no boundaries. Several regions of the world have set out to emulate Silicon Valley and the Boston/Cambridge region in the United States by stimulating local centers of commercial biotechnology. Cambridge, England, and Munich, Germany, have already established significant centers of biotechnology. Critical masses of biotech firms have started to build up in areas as diverse as the Medicon Valley that spans the waterway between Denmark and Sweden, the Swedish city of Uppsala, Strasbourg and Nantes in France, Milan in Northern Italy, and Edinburgh, Scotland, near the Roslin Institute.

European companies lead the way in some areas of biotechnology. "Europe is well positioned in cell therapy and tissue engineering," says Eric Halioua, manager of Arthur D. Little's European life science practice. In addition the biotechnology business has started to expand beyond Europe and North America. "There's a significant investment in biotechnology in emerging economies," says Carr. "The Brazilian government has supported this type of work. We have an office in Sao Paolo and have shipped more than 50 high throughput sequencing instruments there. Chinese scientists who have worked in the U.S. and Europe have gone back to China to start leading biotechnology efforts there." A significant amount of venture capital has enabled several biotechnology start-ups in Israel, according to Eli Mintz, cofounder and president of bioinformatics company **Compugen Ltd.** And the Japanese government has made a move into biotechnology. "Japan is very far along in biotech capabilities," says Peter Nathan, director of marketing for **New England Biolabs**. "We are doing well there because we pay close attention to the relationship with our Japanese partners."

However, Japan's corporate sphere is lagging behind. Venter points out that fewer than 100 Japanese biotechnology companies have venture capital funding.

This report details three aspects of the continuing revolution in biotechnology. First, we look at the technological factors that are stimulating the growth of the industry worldwide. Next we examine the progress of biotechnology in Germany, a country that entered the biotech revolution as a result of a government initiative. Finally we focus on Uppsala, Sweden, an emerging center of biotechnology built on private capital rather than public funding. We also highlight Drug Discovery Technology 2001, a meeting due to take place in Boston, Massachusetts, in August that will feature those themes.

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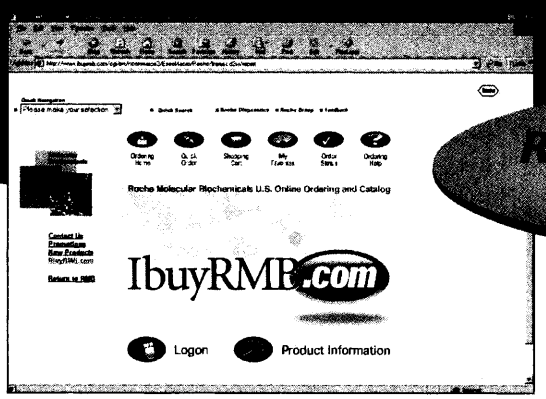

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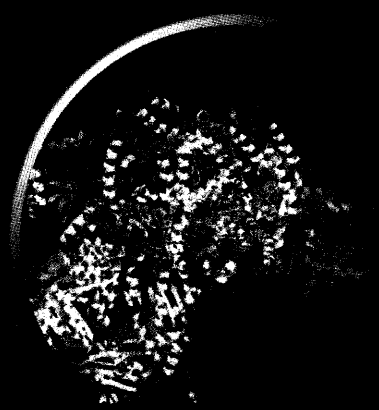

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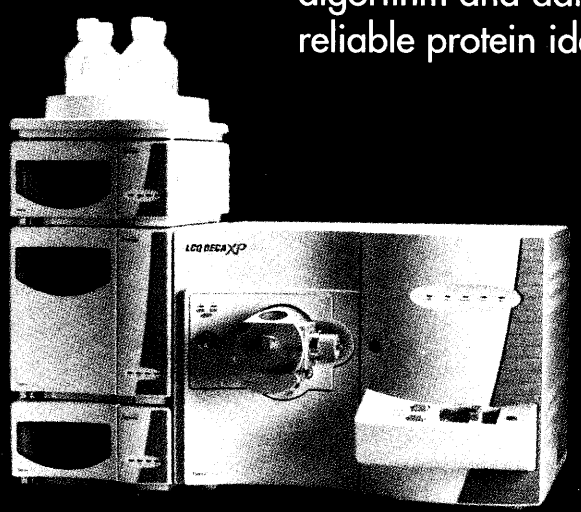

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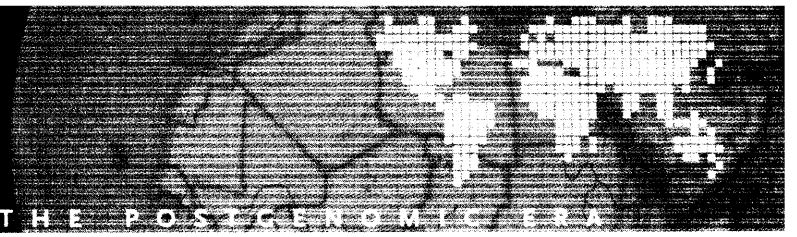

BIOTECHNOLOGY ENTERS THE POSTGENOMIC ERA

THE VIEW FROM THE SUPPLY SIDE

Successful genome sequencing has opened new vistas for the biotechnology business.

A recent survey by consulting company **Accenture** finds that pharmaceutical and biotechnology companies have fallen short of goals they set in 1997 for using biotechnology tools and technologies to speed up and expand the process of drug discovery. The good news is that the successes obtained by genome sequencing efforts over the past year have provided the biotechnology sector with fresh opportunities to meet newly adjusted goals for supporting the pharmaceutical industry.

Genome sequencing has had an impact on basic research at all levels. "We see industrial players who might not have been customers suddenly showing up," says Nathan. "They are very interested in the unique restriction and modifying enzymes that we have, as well as production efficiencies that stem from our proprietary recombinant technologies." Indeed, adds Frank Gleeson, president and CEO of Canadian company **MDS Proteomics**, "The sequencing of the human genome has brought forward the advent of a new era in discovery."

Proteomics has emerged as the poster child of the postgenomic revolution in biotechnology. "Over the past 15 years genomics, functional genomics, and proteomics have consumed one-third of the research market," says Dave Julien, president of **Sigma-Aldrich's** Biotechnology Division. "Proteomics is the fastest growing sector of the research market." New firms such as MDS Proteomics and established suppliers to the biotech business such as Sigma-Aldrich are rapidly expanding into that space to fill biotech companies' needs for relevant reagents and tools. "As we are in the high value reagents business, we see that genomics creates proteomics business and vice versa," says Keld Sorensen, director of research for Sigma-Aldrich's Biotechnology Division. "For example, the proteomics efforts require not only proteomics reagents but also molecular biology reagents such as oligonucleotides. On the proteomics side, we have our own research efforts in place and also external collaborations, primarily with **Proteome Systems** in Australia on sample preparation kits and 2D gels and **Kratos** in England on mass spectroscopy reagents. Sigma-Aldrich has put itself in a leadership position in biotechnology by establishing these strategic alliances."

New companies have introduced new technology for proteomics. **Signature Bioscience**, for example, has introduced a pioneering platform based on microwaves. "Multipole coupling spectroscopy is a brand new screening technology that will allow a research scientist to ascertain a functional change induced by protein-protein interactions," explains CEO Mark McDade. "In effect we do cinematography rather than still photography. We expect to use the technology for drug discovery."

What of proteins themselves? "As the purposes of new proteins are understood, the need for them grows," says John McClellan, director of marketing for **ProdiGene**, a company that develops recombinant proteins from genetically enhanced plants. The company's business has increased in recent months as a result of concern over animal-derived proteins sparked by episodes of bovine spongiform encephalitis. "We have had calls from a variety of different customers mandated to get out of animal proteins," says McClellan. "They're looking for ways to produce animal proteins from nonanimal sources." The growing need for biopharmaceuticals resulting from application of newly discovered protein functions has also increased demand for transgenic plant proteins, he adds.

Global Get-Together on Drug Discovery

What follows the elucidation of the human genome? That's the basic question to be asked at Drug Discovery Technology 2001, the world congress to be held in Boston from August 12 to 17. The event's brochure states that "2001 is the year that gene chip technology has become truly affordable and, one anticipates, will become routine." It goes on: "The impossibly difficult task of examining the human proteome in detail is now being subjected to the same industrialization of research that made the human genome project possible. New paradigms in medicinal chemistry, advances in early compound profiling, and screening combined with a wealth of new technologies have fueled significant changes in the way drug discovery is being approached."

The event will focus on business strategies and science. A preconference working group led by executives of QED Technologies, Inc. will focus on "negotiating and valuing drug discovery technology deals." And in a keynote presentation for a partnering/deal-making summit, Steven Holtzman, chief business officer of Millennium Pharmaceuticals, Inc., will detail "the evolution of Millennium's partnering and deal-making strategy." Science will be served in preconference symposia on drug discovery informatics, protein structure prediction and determination, cutting-edge technologies, and genomics, proteomics, and mass spectrometry.

The main conference will have keynote speeches by Millennium's CEO Michael Levin, George Milne, senior vice president of Pfizer, Inc., and Eric Lander, director of the Whitehead Institute/ MIT Center for Genome Research. The exhibit that complements the event will feature more than 300 booths as well as product demonstrations, round table discussions, and oral poster presentations.

You can obtain more information at the event's web page, www.drugdisc.com. Alternatively, contact Michael Keenan at IBC USA Conferences, 1 Research Drive, Suite 400A, P.O. Box 5195, Westborough, MA 01581, telephone: 508-616-5550, extension 288.

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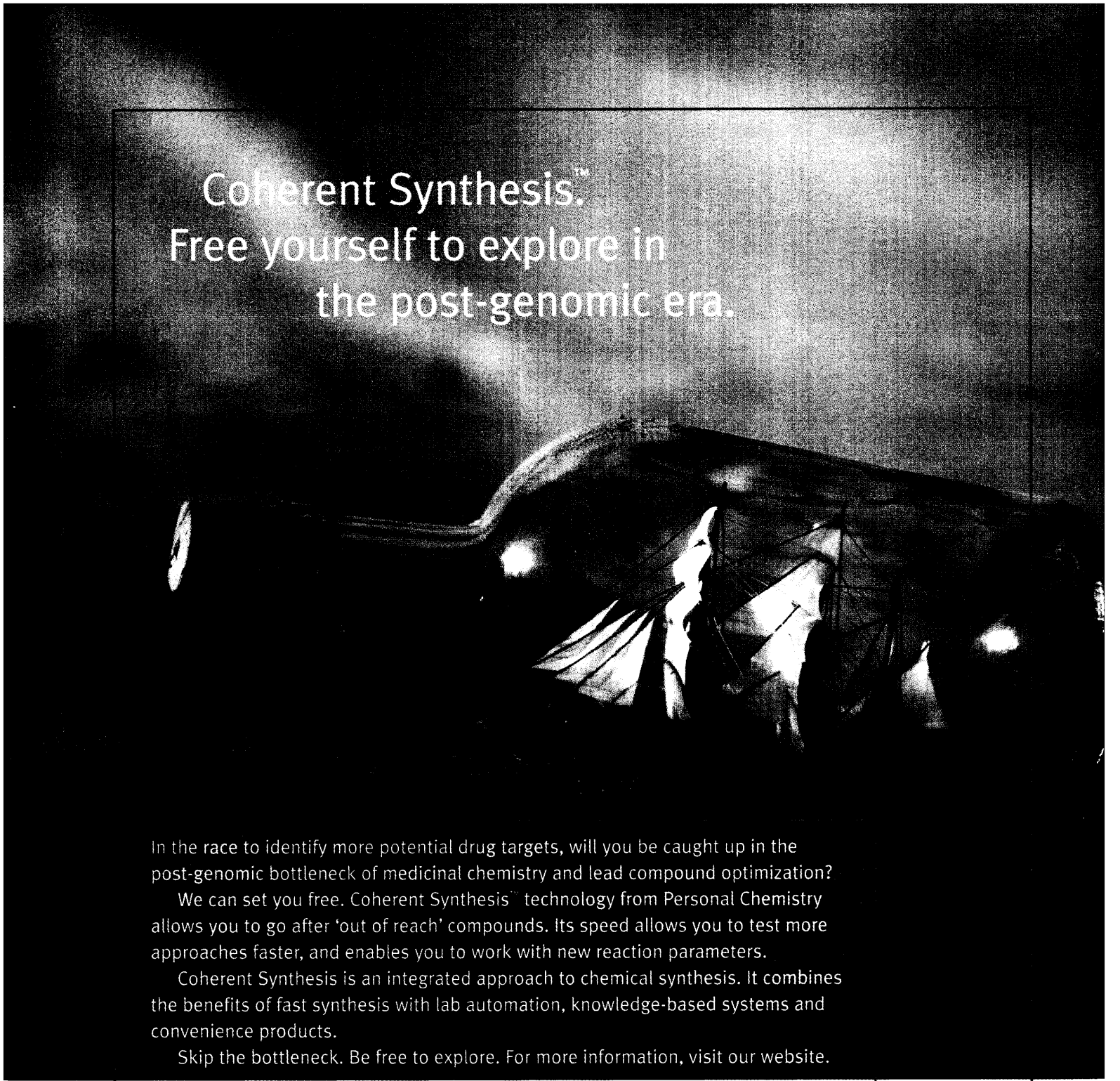

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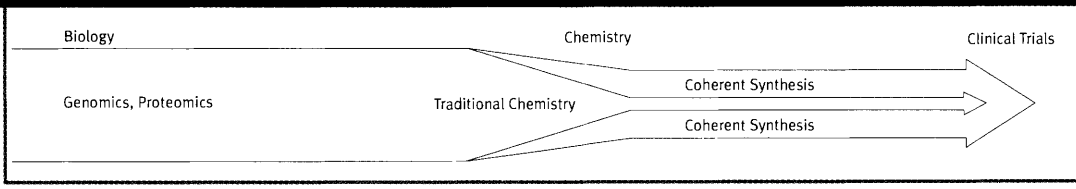

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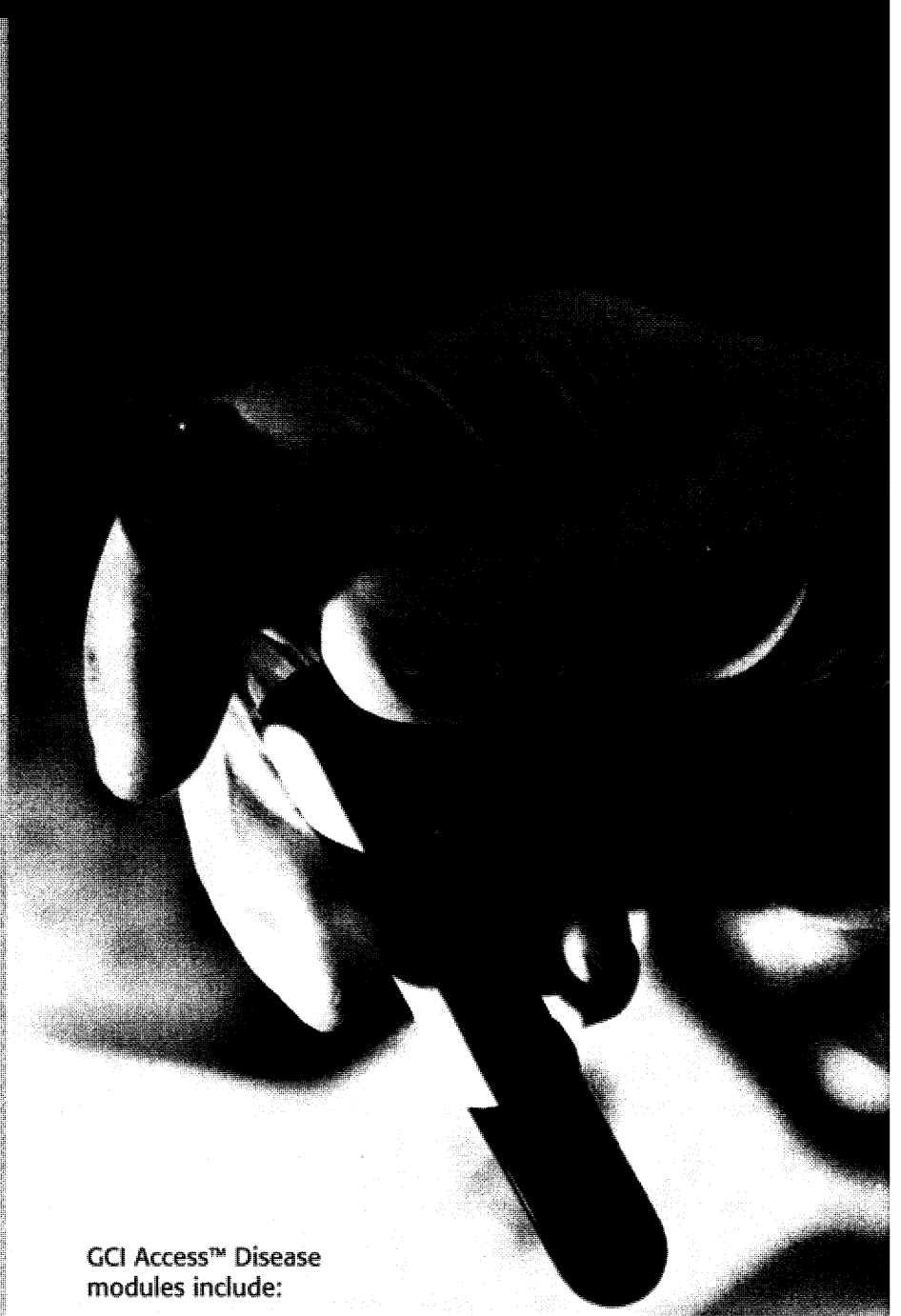

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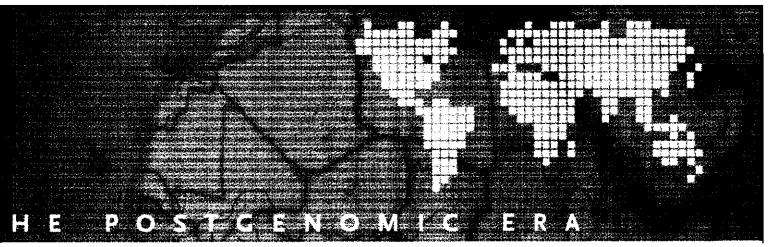

BIOTECHNOLOGY ENTERS THE POSTGENOMIC ERA

INFORMATION EXPLOSION

Proteomics will put pressure on information handlers. Thus MDS Proteomics has created a platform that permits scientists to annotate and validate proteomic information in the context of drug discovery. The company has integrated mass spectrometry-based biological analysis with high-performance supercomputing and computational drug design to increase the productivity of advancing from gene sequencing to therapeutic discovery. "We believe that scientists will need to analyze very different types of information, from sequence data to expression data from chips and microarrays to data on protein-protein interactions to mass spectroscopy data and data from the literature," says Mintz of Compugen, a company that specializes in computational genomics and proteomics. "We foresee a humongous growth in expression data in the next few years."

To deal with their data, many biotechnology companies are desperately seeking specialists in bioinformatics, the combination of biology and information technology. Mintz regards that as only a short-term solution. "We believe that bioinformatics is not going to stick around for long," he says. "Mathematics and computer science will be integral tools of biology and biologists will have to learn how to handle computational tools and techniques. It may be that even before you go to the lab you'll run a simulation and then verify the results experimentally."

Tried and true techniques of genomics and proteomics, such as microscopy, are also undergoing improvements. "Looking for proteins, genes, and markers on cells requires the whole range of products we have, including high-resolution microscopy, specimen preparation, and imaging facilities," says Geoff Jenkinson, product manager, imaging for **Leica Microsystems**. "In the past the designs of microscopes remained fairly standardized. Now the trend is to make them much more automated, and thus easier and more ergonomic to use. New microscopes are also making it possible to automate processes that were previously too difficult to automate. And fluorescent techniques now help scientists to identify what they couldn't detect before."

Whatever technology suppliers provide, they find that customers expect their service to continue to improve. "The fact that we have over 96 percent of our products available at all times used to be something we could thump our chests about," says Sorensen. "Now it's expected. And customers also expect next-day delivery of reagents. Even academic scientists have tighter expectations for deliveries than they used to."

Brian Conkle, manager of U.S.A. operations for **Alexis Biochemicals**, makes a similar point. "Waiting for tools used to take six months," he says. "Now it's a month or so." In part that reflects the aggressiveness with which new firms enter supply markets. "Our customer base has always been the biotech-pharma arena, but we see competitors trying to take up space in our area now," Conkle says. "The time frame to develop any market has shrunk. You have to plant your flag in the market early. And once you're there you have to work to develop products. You can't relax."

GERMANY'S GERMINATION OF BIOTECHNOLOGY

Will biotechnology companies created for a government competition continue to thrive in difficult financial times?

Germany provides a spectacular example of a government-stimulated biotechnology sector. In the mid-1990s the federal government decided to use a competition to identify – and provide funding for – the regions that provided the best encouragement for industrial biotechnology. The competition worked better than any politician could have hoped. Even regions that finished out of the top three had development plans imaginative enough to stimulate local biotechnology clusters.

The BioRegio competition, as it was known, gave a kick start to the entire biotechnology business nationwide. "It was a tremendous accelerator of growth in Germany," says Halioua, Paris-based manager of Arthur D. Little. "We are beginning to see continued interest in biotechnology in Germany," adds Carr of Amersham Pharmacia Biotech, which has been involved in the Rhine-Neckar region. Solveigh Mähler, head of investor relations for **Qiagen N.V.** a Dutch maker of nucleic acid products that has a strong German presence in Hilden, agrees. "The BioRegions have been very successful," she says. "Companies such as Qiagen and **Evotec** that started in the BioRegions are becoming settled."

One reason for the settling is the injection of venture capital into Germany's biotechnology sector. "The money coming from the BioRegions was only to provide a little push at the beginning," explains Mähler. "After that companies need other investors to make their businesses grow." Increasingly that extra investment has come from the United States, where opportunities to back start-up companies have begun to dwindle.

Now, though, with the arrival of a financial downturn, the time has arrived to discover the staying power of Germany's biotechnology boom. Some companies have already suffered. "Biotechnology has been hit quite hard as far as stock prices are concerned," says Rainer Christine, CEO of **amaxa GmbH**, a Cologne-based specialist in gene transfer. "That's not entirely unreasonable as many companies were overvalued. My feeling is that there might be a slowdown in biotechnology but one that's worthwhile. It's very easy in Germany to get public subsidies to start up companies. But now you have to prove that you can get the revenue."

That doesn't mean a demand for instant profits. Rather, investors are looking for the ability to reach the break-even point. "Evotec and **MorphoSys** don't have profits yet, but they have excellent technologies, good business models, and good management," says Mähler. "They are really reliable about future growth."

MWG Biotech AG, a company based in Ebersberg that concentrates on genomic services, instruments, and discovery, sees strong prospects for the future. "Orders for the first quarter are up by 37 percent, and I've never seen such full order books," says Peter Wolstenholme, vice

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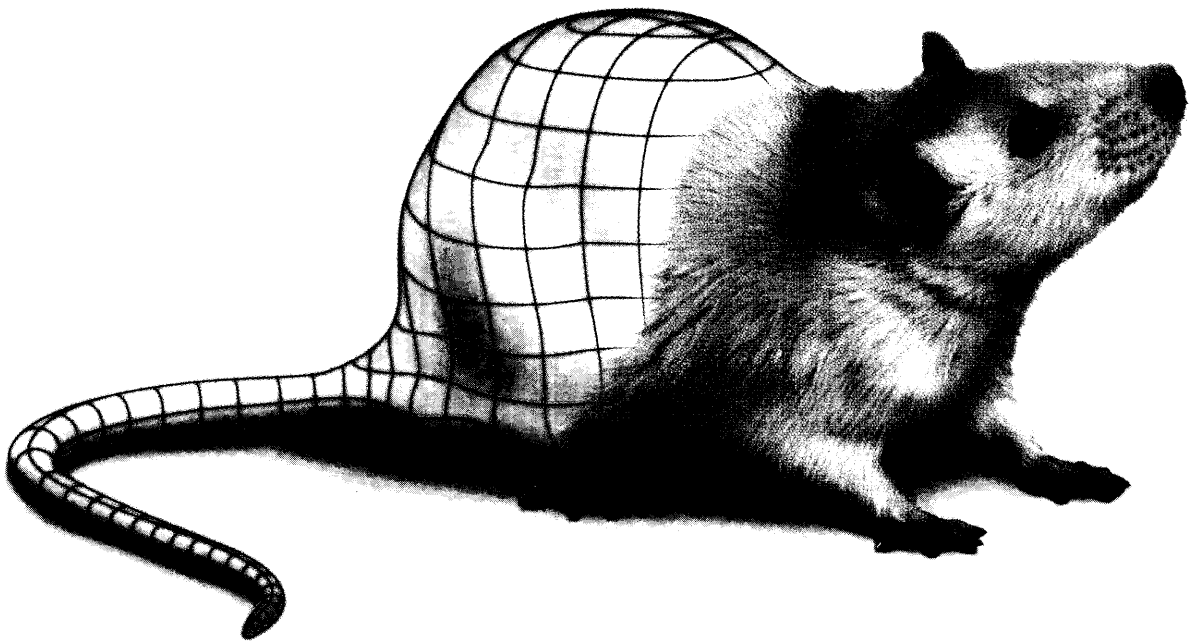

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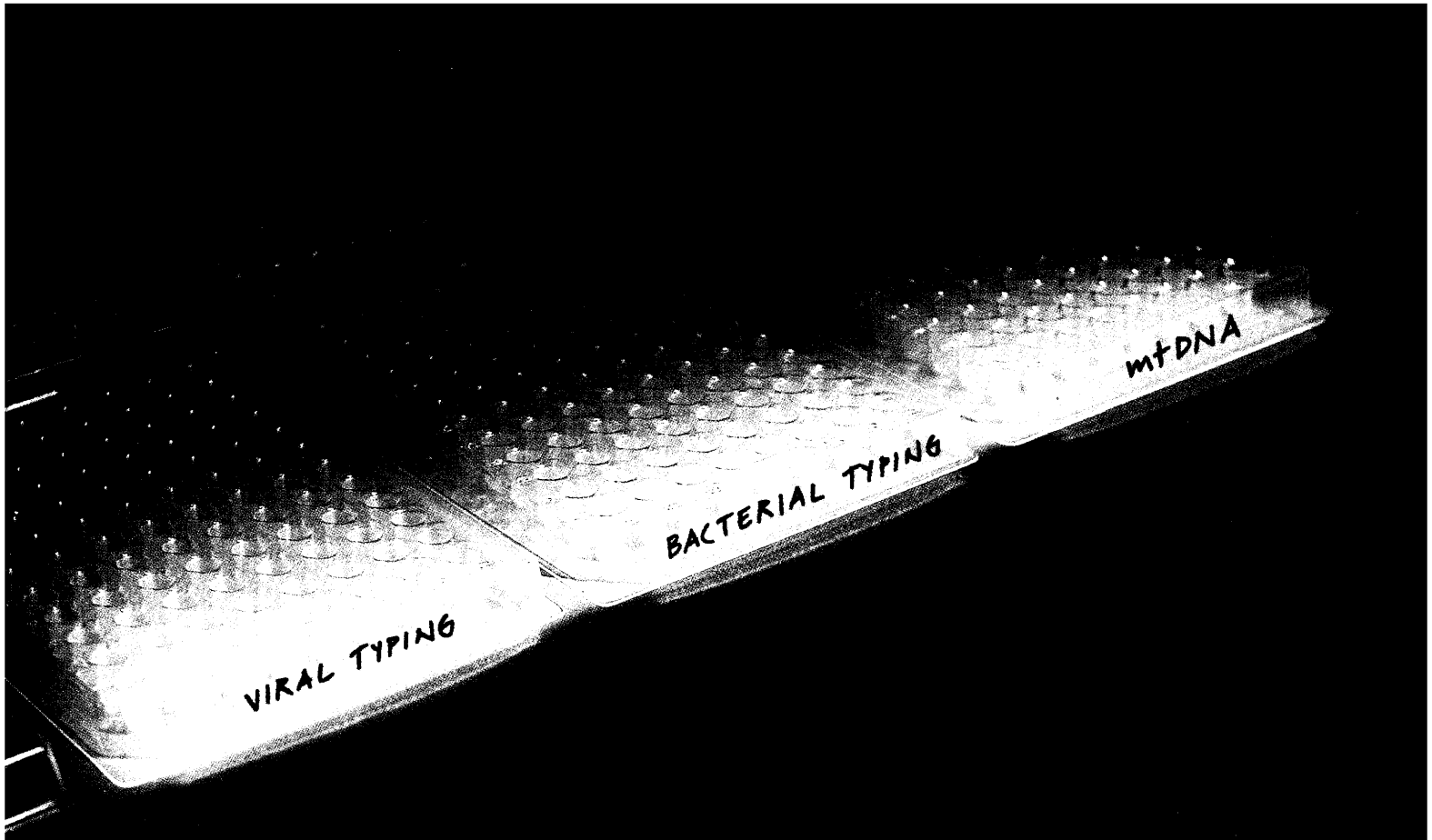

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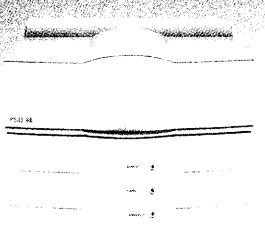

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president of marketing and strategy. "Automation and robotics especially are growing very fast." One reason for the company's relative immunity to the financial situation is its strong presence in the academic life science market. "Academic funds are guaranteed for several years," says Wolstenholme. "All of the work is long term. Projects would not be stopped for fear of a recession."

Qiagen has emerged as one of Germany's major biotechnology companies, with a positive cash flow and profitability since 1996. "We are really the leading provider and something of a gatekeeper in nucleic acid preparation, separation, and handling," says Mähler. "We have more than 300 products on the market in this area. We have a very broad product portfolio. Our customers are in all the research markets, including academic, biotechnology companies, and pharmas. We provide standardized kits. And we are also penetrating the molecular diagnostics market." In April the company announced a joint venture in that market with **Becton Dickinson**.

Meanwhile amaxa, founded in 1998 with two employees, is at an earlier stage of development. "We started with venture capital and some public money," says Christine. "We have finished raising our second round of financing with British venture capital firm **3i** in the lead." The company has 40 employees, half of whom have Ph.D.s. It plans to grow to 70 by the end of this year and to more than 300 by 2005. And in April amaxa launched its first product – nucleofector technology that creates gene transfer efficiency of 50 percent to 80 percent in so-called primary cells, derived directly from the body. "This makes sense in the context of the **Human Genome Project**," says Christine. "A lot of genes have to be analyzed. We think our technology will be very important for medical uses in the future."

UPPSALA'S UPSTARTS

How a Swedish city turned a potentially disastrous departure of a pharmaceutical company into a triumph of entrepreneurship in biotechnology.

Four years ago, the university city of Uppsala faced a serious loss of scientific skill. Sweden's fourth largest city with a population of 190,000, Uppsala had a long tradition of biomedical research and development. At the time, Pharmacia Biotech, a locally headquartered division of pharmaceutical giant **Pharmacia**, had become the main vehicle for continuing that tradition. But in 1997, after Pharmacia linked up with American pharmaceutical company Upjohn, Pharmacia Biotech merged with British corporation Amersham Life Science to create Amersham Pharmacia Biotech (APBiotech). While the new company planned to maintain a sizable and strategically important presence in Uppsala, it announced that it would move certain management functions out of the city as the need arose.

Rather than panic, the merger stimulated a remarkable burst of entrepreneurship. Some life scientists, taking it as an opportunity to try something different, started to license and commercialize ideas developed there and in the local universities. APBiotech itself spun out some of its technologies. The result: a flurry of biotechnology start-ups in the city. "Entrepreneurial activity in life science has really accelerated during the past three years," says Arne Forsell, a former president and chief operating officer of APBiotech who is now an associate partner in venture capital company **Upinvest** and incoming of the **Uppsala County Chamber of Commerce**. Today, adds Per Lindström, chief business officer of **Campus Uppsala**, an academic-business collaboration, "We have about 35 biotechnology companies with more than five employees. We also have a portfolio of about 200 with fewer than five from which we expect to build 5 to 10 new competitive companies per year over the next couple of years. We're looking forward to bringing up five to six new biotechnology firms in the next year. And the existing companies are recruiting over 2,000 people."

If non-Scandinavians who regard Sweden as a prototypical socialist country find the idea of entrepreneurial Swedish scientists surprising, they will be astonished by the method of financing Uppsala's growth in biotechnology business. Rather than depending on funds from the national and local governments, the new companies have relied largely on venture capital – another new area of accelerating business activity in Sweden. "Fifteen years ago there was virtually no venture capital activity in Sweden," says David Jern, who manages the Swedish life science practice of international consulting firm Arthur D. Little. "Today there's a large venture capital market with access to a lot of capital."

CAPITAL GAINS

Biotechnology companies in Uppsala have succeeded in attracting a significant proportion of that capital. "Last year the companies attracted more than 2.3 billion Swedish kronor ($225 million) in venture capital," says Forsell. That amount, adds Lindström, "accounted for 1 percent of the venture capital devoted to biotechnology worldwide."

Entrepreneurial scientists and the money to fund them were necessary but not sufficient for Uppsala's emergence as a center for biotechnology start-ups. Fortunately, the city had the essential extras. Its two major academic institutions – **Uppsala University** and the **University of Agricultural Sciences of Sweden** – provided commercially attractive ideas and ready sources of junior level employees. The universities quickly developed sophisticated technology transfer organizations to convert promising research into business proposals. Just as important, several managers with experience in developing, marketing, patenting, and forming alliances for the biomedical industry chose to remain in the region after Pharmacia had started to downsize. Their skills complemented the inventiveness of local scientist-entrepreneurs.

Meanwhile a science park stood ready to incubate start-up companies. And fresh start-ups created a critical mass of interdependent biotechnology firms that support each other

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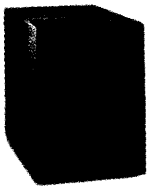

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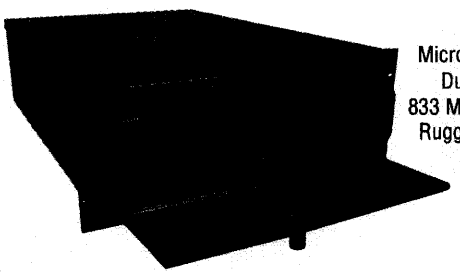

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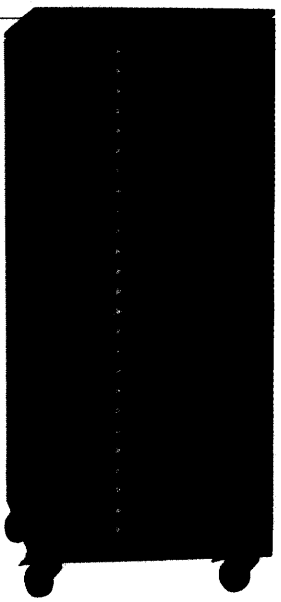

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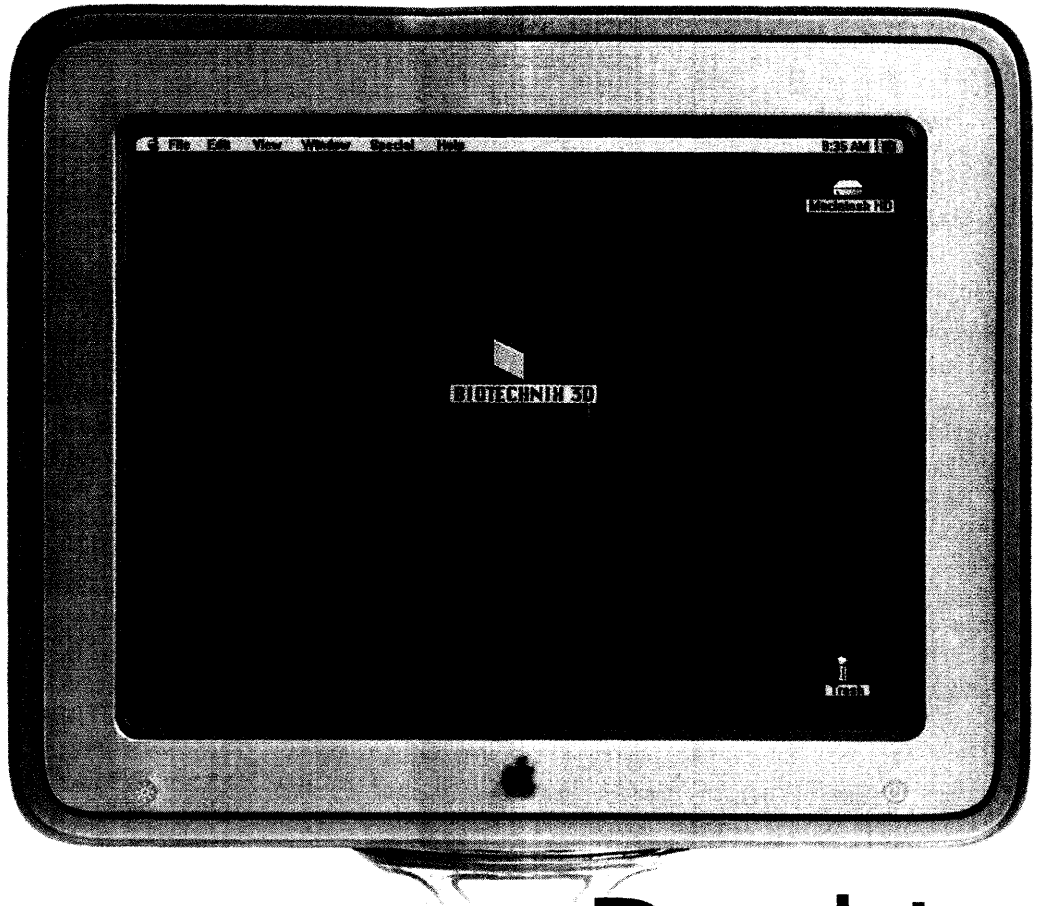

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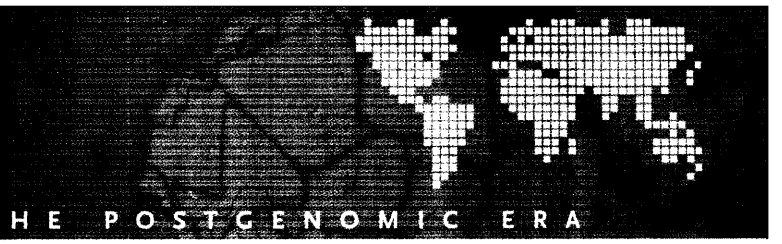


BIOTECHNOLOGY ENTERS THE POSTGENOMIC ERA

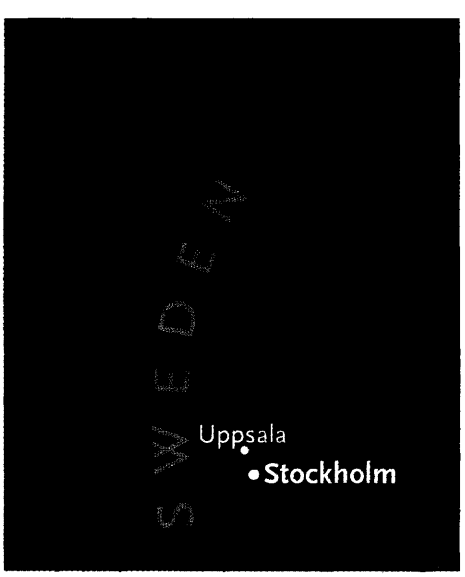
directly and indirectly. Significantly, says Ulf Jönsson, president of **Biacore International AB**, "no companies in Uppsala are direct competitors."

Perhaps most critical was the encouragement of scientific enterprises by the local and national governments and the general population. "I find Sweden to be the most advanced country in terms of science per capita anywhere in the world," says Celera's Venter. "The scientific culture seems to be well embedded there. They've developed a very strong entrepreneurial attitude, which is good for science."

FROM LINNAEUS TO PHARMACIA

Uppsala University traces its life science tradition as far back as Carolus Linnaeus, the 18th century botanist who established the rational method of classifying living organisms. Local scientists built on that foundation in the 20th century, says Julian Stubbs, CEO of **The Dowell/ / Stubbs Group**, a marketing and communications company. They invented (among other products and technologies) the ultracentrifuge, electrophoresis, and chromatography. "Uppsala has fostered a culture and tradition in pharmaceuticals and medical sciences over the past 50 years," says Erik Walldén, CEO of **Pyrosequencing AB**, a four-year-old producer of solutions for applied genetic analysis.

The culture continues. "The tradition of biomedical research is very much alive today. In fact it's more vigorous than ever," says Forsell. The cornerstones are the two universities. In fact Uppsala University was among the early European institutions to pursue the emerging science of biotechnology. "It has been involved in biotechnology for more than 30 years," says Lindström.



On the commercial side Pharmacia and Astra, another drug company that has since undergone its own merger into **AstraZeneca**, created the business foundation of local biomedicine starting in the 1940s. Pharmacia Biotech, which spun out and became partly independent of its parent company in 1992, created business opportunities specifically based on biotechnology.

It's hardly surprising, then, that the impending changes brought about by Pharmacia Biotech's incorporation into APBiotech posed a severe threat to the city's economy. The prospect wasn't unique to Uppsala. "Sweden's industry seemed to be faltering as a result of overseas buyouts," recalls Stubbs. In fact the government had already started to plan for the next stage of industrial development. "Sweden is rebuilding its pharmaceutical industry through small ventures," explains Jern.

Uppsala was well-placed to become a center of such ventures in biotechnology. The science park, set up by the local authority more than a decade ago, had the capacity to take in start-up companies. To give incubating biotechnology firms a further boost, the Chamber of Commerce worked with the two local universities to set up a group that gave advice on start-up procedures and early growth. "We looked at **Research Triangle Park** in North Carolina as our model," recalls Stubbs, who was a member of the group. "It's the old classical science park concept with more value creation," adds Lindström. "We identified specific needs and worked on our relationship with the investment banking community and the management community. In a way we carried out a deal-making operation. That's partly why things have worked so well."

KEY COMPONENTS

Other components essential for a biotechnology boom also fell into place. APBiotech's scientists weren't alone in wanting to do whatever was necessary to remain in Uppsala. Several skilled managers made the same decision and thus became available to help direct the emerging firms. "We had quite a few people with international experience in making business and biomedical innovations," says Forsell. "The environment here created around Pharmacia Biotech has created a level of competence in both business management and science that made it reasonable to believe that one could build a company here," says Hans Johansson, CEO of **Personal Chemistry**, an Uppsala firm that started to expand in 1998.

The local ambience also helped. "When we shopped around for where to put our company we realized that Uppsala had a lot to offer," says Maris Hartmanis, president and CEO of **Gyros AB**, a microfluidics company that settled in the city last year. "It has excellent facilities and well-educated people as well as universities, hospitals, and research institutes. It has small shops within walking distance that can deliver components to us. We have access to various consultants. Overall there's a very good infrastructure supporting biotechnology start-ups." Uppsala remains an important strategic site for APBiotech as its "center of excellence" for protein separations and proteomics. The company continues to invest strongly in the site and maintains a significant presence in the city. More than 300 scientists work at the company's R&D facility there out of a total of 800 employees at the site, according to Carr.

What was missing was private funding. Here again Uppsala had a lucky break. About five years ago a venture capital industry emerged in Sweden. Why? "I don't have a good answer on that," says Forsell. "I wouldn't be surprised if Swedish financiers haven't been influenced by what has happened in the United States." Whatever its origins, the industry grew at a rapid rate. "I haven't seen a country with so many competent people in the venture capital business," says Jern.

A major member of the industry was **Health Cap**. Started in 1996, this has become the largest venture capital fund in the Nordic countries and one of the largest in Europe devoted to supporting life science. "The company was started by people with very good backgrounds in the scientific arena – M.D.s and Ph.D.s who had moved into the financial sector," says Forsell. "They had the competence to talk to financiers." Where

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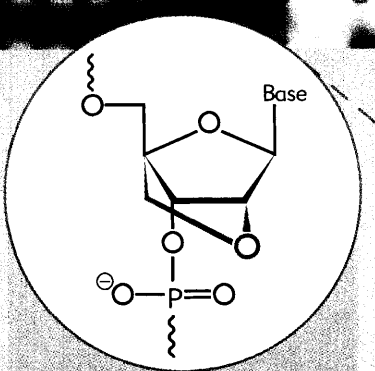

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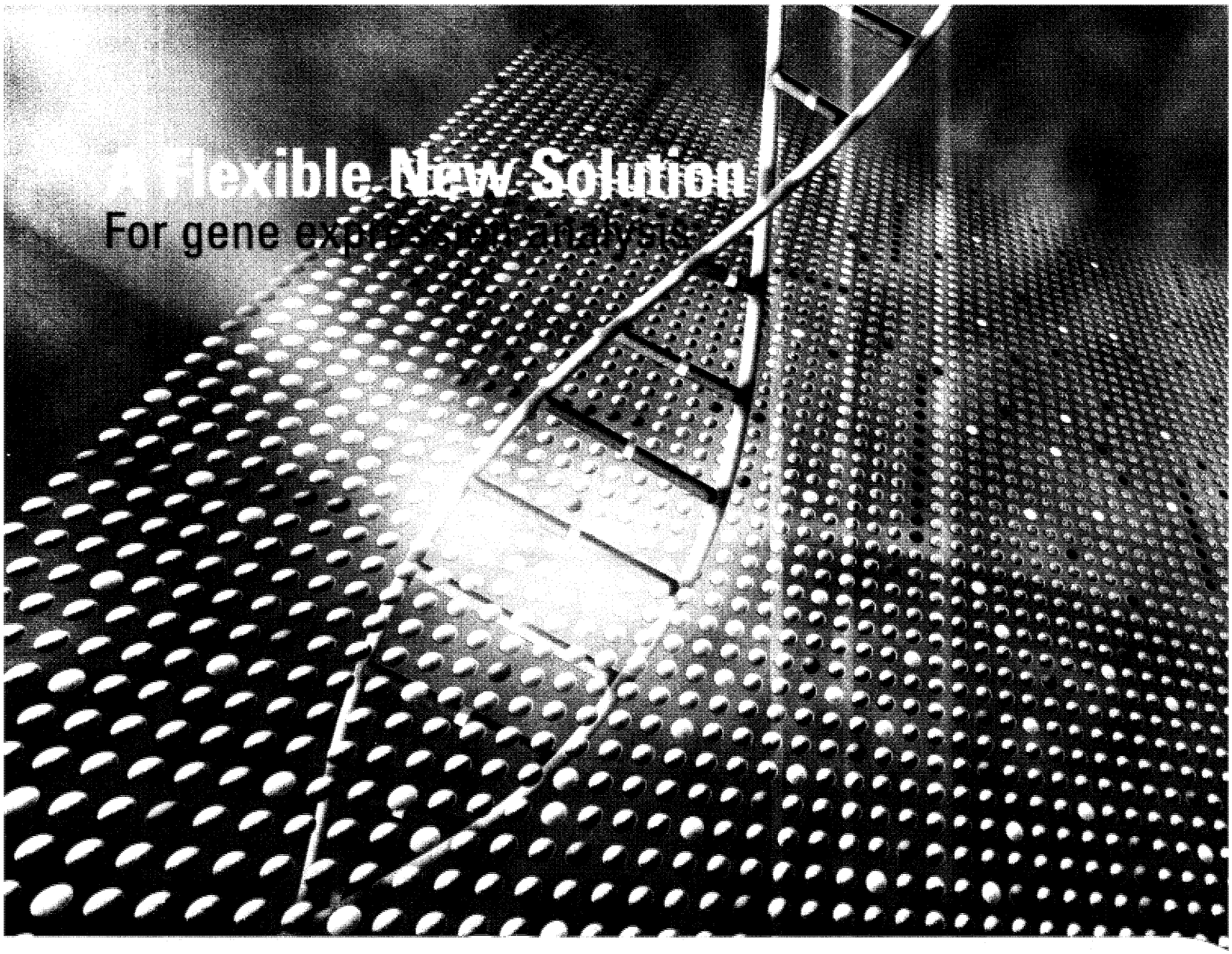

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Health Cap led, other venture capital firms, such as **Investor Growth Cap** and **Industrifonden**, followed. The venture capital in the hands of managers of start-ups experienced enough to use it effectively, says Lindström, "helped to develop a critical mass of companies."

FURTHER FACTORS

Further factors helped to stimulate Uppsala's development as a center for the biotechnology business. Instead of aiming to become full-blown pharmaceutical companies, most start-ups concentrated on producing tools, equipment, and services – the segments of the business that can provide reasonable revenues and profits for investors in relatively short periods. In addition, says Forsell, companies have taken advantage of "the obvious trend of big pharmas to outsource R&D, clinical tests, and screening. That is fueling the industry in Uppsala." Also, Forsell continues, "You have start-ups cultivating drug targets. This can be done in a rather niche-oriented way. You don't necessarily have to be big and fast and have a lot of investment."

Uppsala offers one other incentive for future exploitation. "The Swedish health care system has taken great care to preserve health records over many years," explains Carr. "So it is well-positioned to apply some of the health care aspects of the work in Uppsala."

The local lifestyle, meanwhile, helped to persuade scientists and managers already there to stay and to attract others from outside. "Uppsala is a very pleasant place with a really good quality of life," says Forsell. "It has a lot of cultural activities and it's just an hour's drive from Stockholm if you want a change." Indeed, Uppsala is closer to Stockholm's Arlanda International Airport than the Swedish capital itself.

A more tangible incentive helps to attract overseas scientists and managers to the city. A law about to take effect will give tax breaks to foreigners, who will have to pay taxes at rates similar to those in their native lands rather than at high Swedish rates. In addition, Stubbs says, "The local government is now trying to establish English-speaking schools to attract more foreigners." New arrivals will find plenty of colleagues on site. "A lot of people have already come from abroad," says Stubbs, who moved to Uppsala from Britain in 1989 as Pharmacia Biotech's vice president of marketing and communications with the goal of turning the company into a strong global brand. "So far we have been very lucky attracting people from Europe," echoes Hartmanis.

English-speaking emigrants will face one ironic problem. "It's difficult for them to learn Swedish because the local residents all speak English," Stubbs notes. "About 65 percent of Swedes speak it fluently and another 20 percent reasonably. You can get by speaking English alone."

LOCAL SPINOUTS

What persuaded new companies to settle in Uppsala? The decision was relatively easy in several cases because the companies originated in Pharmacia Biotech or APBiotech. "We were founded as part of Pharmacia in 1984 and spun out from it in 1996," recalls Biacore's Jönsson. "Today we are a completely independent company. We have no thoughts of leaving Uppsala. It's an exciting place to be. It's similar to Silicon Valley although on a smaller scale."

One similarity is the supply of competent scientists in the local companies. "The clustering of Pharmacia, APBiotech, and small companies means quite a lot of turnaround among people," says Jönsson. "That clustering also seeds a lot of other companies."

Biacore specializes in proteomics and functional genomics, which are key areas of focus for academic research and biotechnology supply companies in the area. "We're a cross-disciplinary company in the sense that we have software, engineering, and chemical people to develop our analytical systems," says Jönsson. "Our market niche stems from the fact that genomics has produced so many targets that need validation and that create bottlenecks in the drug discovery process. Luckily for us there's a clear demand for technologies to overcome those bottlenecks."

The company has a strong international profile. "The majority of our sales are in the U.S. – about 44 percent last year," says Jönsson. "Roughly 32 percent occur in Europe. We are strong in Asia too, with about 23 percent of our sales." Jönsson expressed optimism for the future. "We believe that the achievements we have made in improving our technology and the recent announcement of real-time, no-label measurements in an array form that significantly increase throughput while retaining the same information content that's available with existing Biacore systems have great possibilities," he says. "It will make us a key player in proteomics."

Gyros emerged from a microfluidic project built up at APBiotech between 1990 and 1996 and run by Hartmanis and Per Sjöberg, now Gyros's vice president for commercial operations. "I came to realize that to fully exploit the potential of that microfluidic platform I would have to spin out Gyros," Hartmanis recalls. At the time of its foundation, with investment from APBiotech and pension funds, it was the largest biotechnology venture ever undertaken in Sweden. "We are running three different programs," says Sjöberg. "Two will target applications in the proteomics area, and the third is based on our internal core competencies in creating different unit operations based on microfluidics and extensive surface chemistry technology. This will help to enhance productivity in a number of steps in the drug discovery process."

TECHNOLOGIES FROM OUTSIDE

Personal Chemistry's technology has its roots in work at Stockholm's Karolinska Hospital. Sören Nygren of Uppsala University started up the company as a one-man operation in the early 1990s. Health Cap provided the seed money for its expansion in 1998. Johansson arrived as CEO at the same time and quickly decided to remain in Uppsala. "We plan to improve medicinal chemistry by creating a paradigm shift based on microwave technology," he explains. "We're speeding up reactions radically, enabling chemistry that wasn't otherwise possible."

In doing so, the company expects to help pharmas avoid a bottleneck in the drug discovery process. "We have established through our contacts with industry that chemical development of drugs beyond high throughput screening is very time consuming," Johansson continues. "On top of that there's a global shortage of skilled medicinal chemists. Unless there's a way to overcome this bottleneck there would be a really serious shortage of such chemists 10 years from now." Personal Chemistry's technology promises to relieve that possibility. "We introduced our first

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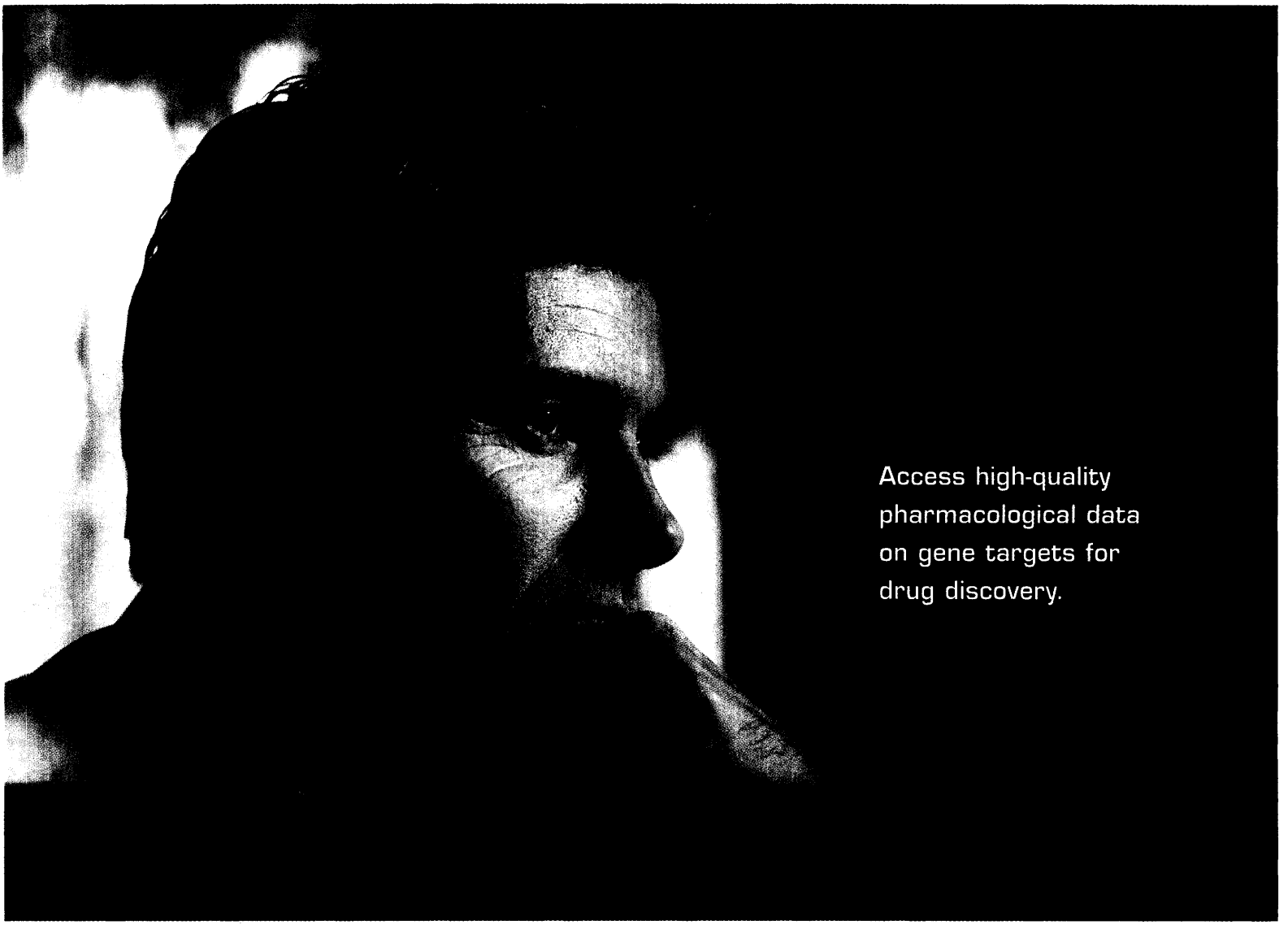

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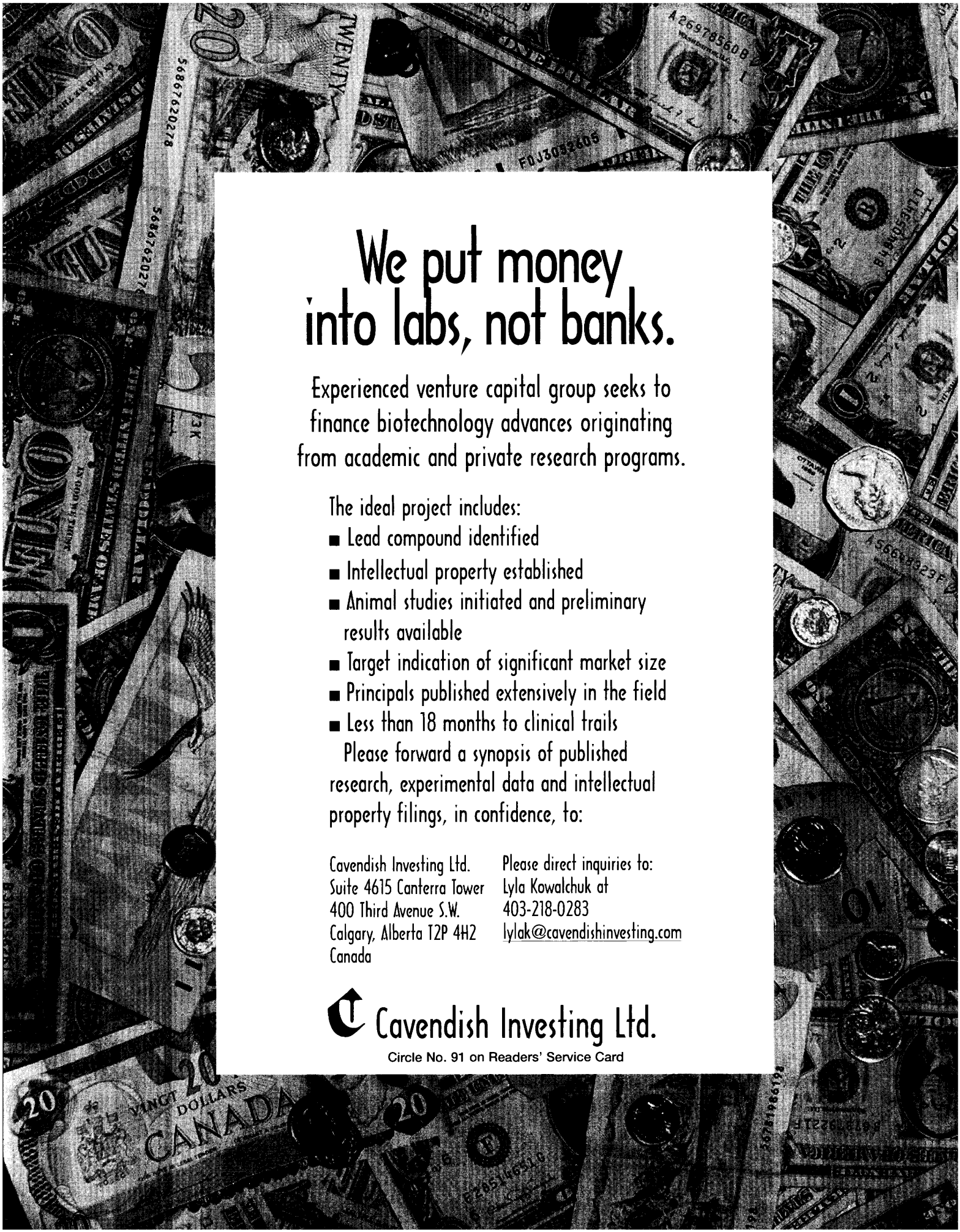

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instrument a year ago and in the past month we have introduced our second instrument and the second version of our software," Johansson says.

Pyrosequencing came entirely from outside Uppsala. Established in 1997 to commercialize discoveries by Mathias Uhlén and Pål Nyrén at the **Royal Institute of Technology** in Stockholm, the company quickly zeroed in on Uppsala. "The No. 1 argument was the availability of skilled people in the field," says Walldén. "We were looking for the best people with industrial experience. Uppsala is second to none." "When we hire people for administrative functions, they are typically acquainted with the type of business and the technology," adds Björn Ekström, the company's first employee who is now executive vice president and chief technology officer. "That's valuable when you're starting up."

Like other start-ups, Pyrosequencing has benefited from Uppsala's corporate ambience in biotechnology. "We have a pretty strong network of local companies that can help with software development," explains Walldén. "They include a couple of excellent companies trained in our trade. They know what DNA sequencing is like."

BRIGHT FUTURE

Several other start-ups have settled in Uppsala. **Animech** creates animated sequences describing the appearance and function of biotech instruments such as Personal Chemistry's Smith Synthesizer. **BioPhausia** offers pharmaceutical services that involve microcirculation and biopolymers. **Gemini Genomics** links risk profiles for diseases to genes. And **AlphaHelix** offers what it claims is the world's fastest system for DNA analysis.

Chamber of Commerce Chairman Forsell and his colleagues believe that the city will continue to attract biotechnology companies. "There's no lack of good ideas and we have a lot of entrepreneurial people," he says. "The critical factor will be to have enough people with the competence for managing."

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

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

WANTED: Scientists for the Postgenomic Era

To apply the results of genome sequencing to the discovery of new diagnostic techniques, drugs, and other therapies, biotechnology and pharmaceutical companies are recruiting scientists from a wide variety of disciplines. In particular they seek individuals who feel comfortable handling complex data. BY PETER GWYNNE

The recent publication of the human genome sequence marked the official arrival of the postgenomic era. By offering faster, more efficient methods of drug discovery, the era opens up new vistas for biotechnology and pharmaceutical companies. That means fresh career opportunities for scientists trained in life science and contiguous disciplines.

While companies recruit scientists with a broad range of education, they have some critical requirements for all their hires. Communication skills are essential. So is the ability to work in a multidisciplinary environment. Just as important is research experience. Companies expect applicants to demonstrate their comfort with the laboratory environment by showing undergraduate research projects, at the least, on their résumés. Better yet is participation in an industrial lab via an internship.

Here we interview representatives of nine biotechnology and pharmaceutical organizations seeking scientists. They outline the criteria for scientific qualifications and less tangible attributes that they expect from their applicants.

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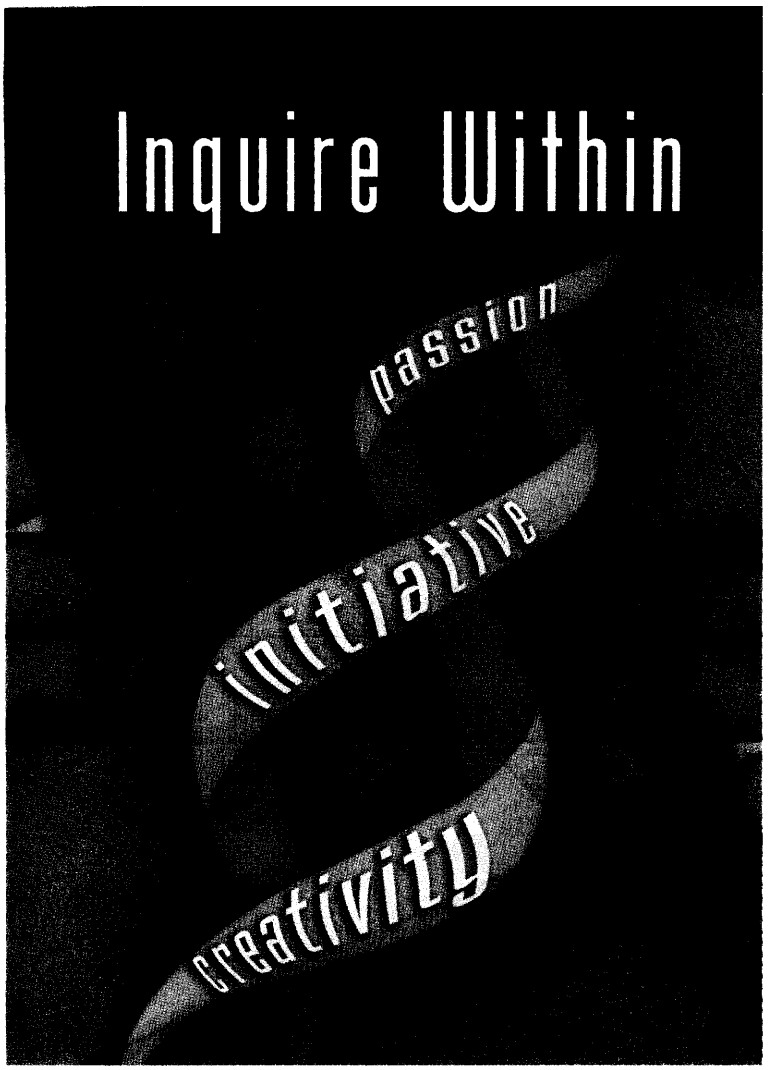

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We are also seeking **Scientists** to assist in the purification and functional/structural characterization of novel proteins within our Protein Chemistry Department. You will interface and collaborate with multiple project teams. Candidates must have a PhD in Chemistry, Biochemistry, Protein Chemistry or Molecular/Cell Biology and 2-4 years of postdoctoral experience. Experience in purifying recombinant proteins from mammalian or E. coli expression systems and in protein refolding or interaction techniques is desired. To work as part of this multidisciplinary effort, you should have excellent communication skills. Job Code: PROCH-SCI

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To apply for this position, send your resume via email to grewal.iqbal@gene.com.

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You will develop improved methods for reliable, low-level phosphorylation site determination, building on current methods for phosphopeptide analysis including metal ion affinity capture and selective scans by mass spectrometry. Your methods will be applied to research in signal transduction pathway analysis, and to proteome-scale post-translational modification studies. Requires a PhD in Biochemistry, Chemistry or related field and 0-2 years experience, with a strong background in protein chemistry. Experience with HPLC and mass spectrometry is preferred. Job Code: 2123-SCI

To apply for this position, send your resume via email to stults.john@gene.com.

Protein Engineering

A position is available to evaluate determinants of protein stability, peptide folding, or protein-peptide interactions using a combination of design, diversity methods (phage display), and biophysical techniques. Projects may also include investigation of small molecule-protein interactions. For recent work, see *J. Am. Chem. Soc. 123:625:2001; J. Am. Chem. Soc. 122:12600:2000; PNAS. USA 98:5578:2001.* Requires a PhD in Chemistry or Biochemistry and research experience in protein structure-function studies, enzymology, bio-organic chemistry, molecular evolution or biophysics. Job Code: 3559-SCI

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To apply for this position, send your resume via email to devos.bart@gene.com.

Protein Chemistry

Studying the mechanisms of protein folding of molecules of therapeutic interest, this project focuses on folding recombinant proteins produced in bacteria and will use a variety of spectroscopic and physical methods to determine the secondary structure and to follow folding dynamics. Efforts to determine the biological function of these novel proteins will be part of the project. Requires a PhD in Biochemistry, Molecular Biology, Chemistry or related field and experience with protein purification, protein mass spectrometry or spectroscopic techniques. Job Code: 3741-SCI

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Requirements

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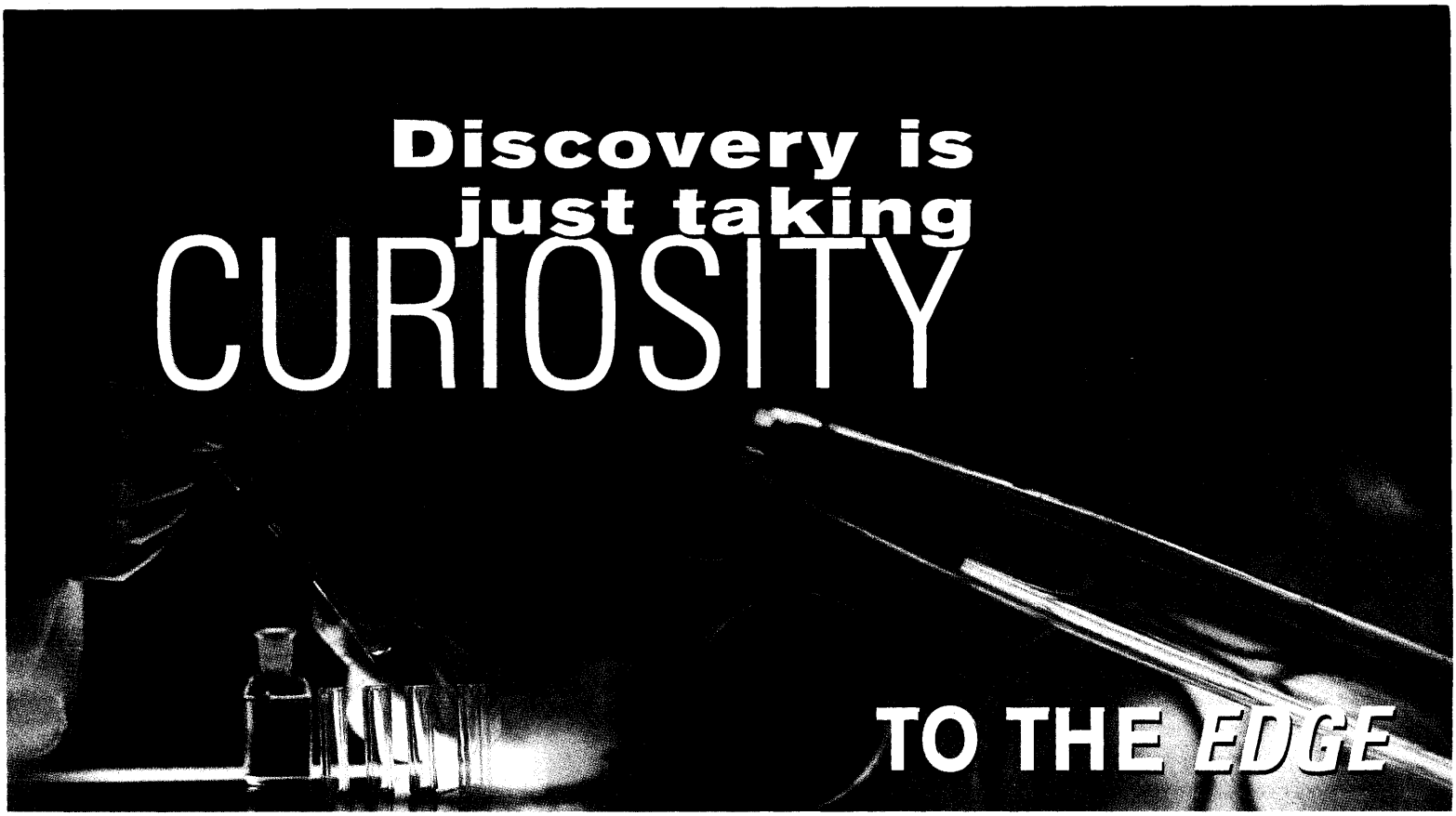

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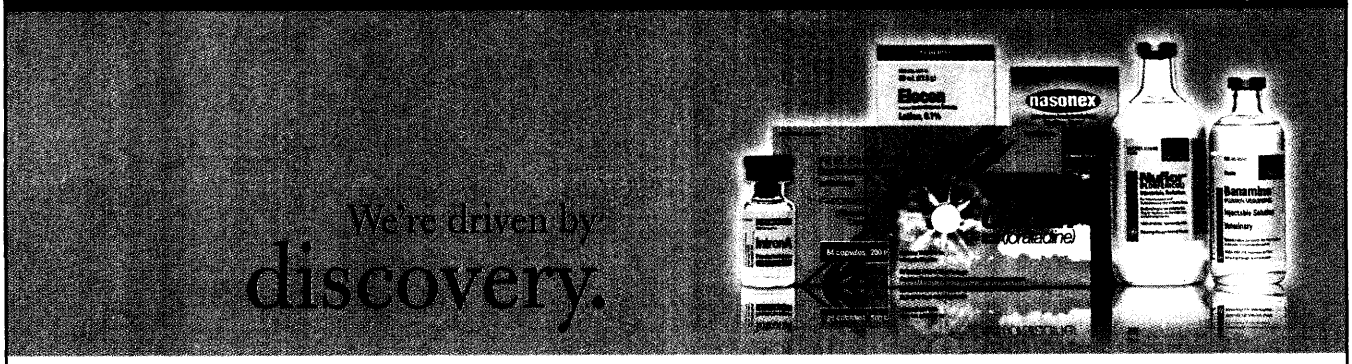

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BS/MS Research Associate High-Throughput Screening [HTS]

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A BS/MS in Biochemistry or Biology (with Biochemistry minor) and research experience in the area of enzyme or receptor kinetics, characterization, regulation and signaling are required. Knowledge of laboratory equipment, automation and computers, biochemical/molecular assay methodologies and automated laboratory equipment and techniques are desired. You must have strong organizational and communication skills. **Job Code: PAD/SCJ/SRI/946HS**

BS/MS Research Associate - Tumor Biology

In this position, you will concentrate primarily on Signaling Pathways as targets for drug discovery. A BS/MS in Biology, Biochemistry or Molecular Biology and 2+ years of laboratory experience, including molecular biology, biochemical techniques and cell culture experience, are required. Expertise with enzyme assays, western blotting, PCR and cloning are desired. **Job Code: PAD/SCJ/SRI/1400HS**

UNION

Senior Engineer - Biotechnology Development

You will plan, supervise, and evaluate pilot scale fermentation and recovery studies for monoclonal antibody, hybridoma, gene therapy, and recombinant bacterial processes as well as pilot scale development studies. Oversee routine operations of the Cell Culture and Microbial Fermentation Pilot Plants, ensuring that cell culture and recovery operations are in full compliance with cGMPs.

A PhD in Chemical/Biochemical Engineering and 3-6 years of experience in process development, scale-up, and clinical production of cell culture products are required. Strong technical and supervisory skills as well as prior experience in cGMP production are needed. **Job Code: PAD/SCJ/SRI/1337HS**

LAFAYETTE

Senior Scientist/Senior Principal Scientist Genetic and Molecular Toxicology

You will be responsible for conducting GLP genotoxicity tests including bacterial mutagenicity, *in vitro* human lymphocyte chromosome aberration and *in vivo* micronucleus assays. You will be involved in genetic or molecular toxicology research projects.

A PhD and hands-on experience in the above-mentioned assays and knowledge of GLP are required. Prior CRO or industry experience is preferred. **Job Code: PAD/SCJ/SRI/673HS**

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Openings are currently available in the following areas:

- **Biostatistician**
- **Functional & Structural Annotation**
- **Target Discovery & Validation**
- **Cell biology**
- **Confocal microscopy**
- **Recombinant protein expression**
- **Protein purification/separation (LC, HPLC, MDLC)**
- **Protein chemistry (derivatization/conjugation)**
- **Protein interaction analysis (SPR, calorimetry)**
- **Biological mass spectrometry (ESI, MALDI, TOF-TOF)**
- **Immunological assay development**
- **Pathology**
- **Histology/Immunohistochemistry**
- **Antibody production**
- **Software engineering**

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CAREERS IN

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JOHN MCKEARN

CHESTERFIELD, Missouri: Created in April 2000 through the merger of Pharmacia & Upjohn with Monsanto Company and its G.D. Searle unit, Pharmacia Corporation focuses on drug discovery and agriculture. "Both companies took a leading-edge position in human genomics," says John McKearn, senior vice president of discovery research. "We follow up genome sequencing very aggressively, building on an effort we put in place five years ago."

McKearn identifies three key disciplines for the pharmaceutical industry and Pharmacia. "Just about anything in computation is very strong," says McKearn. "Software engineering is also a very hot discipline. And, perhaps surprisingly, the genetics field in particular is very hot for us right now."

The ability to deal with data has emerged as a powerful selling point for recruits. "The amount of information available each year is accelerating," says McKearn. "If you're not in place with capabilities for interpreting that information, you'll be left at the wayside. So any subspecialty that can help scientists to relate target gene identification to disease validation is critical."

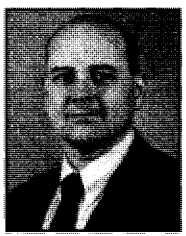
Why has genetics become so prominent for Pharmacia? "We are looking at gene associations, single nucleotide polymorphisms (SNPs), and the relationships of a genotype to a particular spectrum of phenotype," McKearn explains. "We need very well trained people who can see that correlation scores are spot on and not influenced by any other area."

Beyond the laboratory, he continues, "We and other leading pharmaceutical companies have had a frenzy in preclinical development. We are looking for people who do toxicology studies, pharmaceutical studies, and related areas."

In addition to scientific skills "we look for fire in the belly," says McKearn. "We look at entrepreneurialism. And communication skill comes very high on our list. Discovery and preclinical research involve very open exchange of information." Scientists must also have a feel for the issue of urgency. "Information is available for a fleeting moment before everybody pounces on it," he explains.

Finally McKearn looks for intellectual breadth. "It's important to have a diversity of interests," he says. "We sometimes ask candidates what their hobbies are. That can make a difference between whom we hire and reject."

What advice does McKearn have for students interested in joining the pharmaceutical industry? "Having computer skills and a strong dose of cell and developmental biology is very useful," he says. "Writing and communication skills are still very important. And during class time I would strongly encourage practical experience through internships."



BRIAN DIXON

WEST HAVEN, Connecticut: Like other pharmaceutical companies, Bayer Corporation has moved quickly to take advantage of advances in genome sequencing. "There's an enormous opportunity here; the game is just starting," says Brian Dixon, the company's vice president of research technologies. "There's a tremendous gap between what we know in the genomic sense and what will make an impact on disease."

To help close that gap Bayer is looking for scientists trained in several fields. They include synthetic organic chemistry, molecular biology, bioinformatics, biochemistry, enzymology, and cell biology at all degree levels from Bachelor's on up. "The majority of hiring we're doing now is at the Ph.D. level," says Tania Gill, a senior staffing specialist in the human resources recruiting department. "Our recent hires in bioinformatics were people from our competitors with industry experience. We are very competitive and we seem to have a good success rate in hiring at all levels and backgrounds."

Bayer focuses strongly on applicants' nonscientific skills. "We've identified six major core competencies, such as collaborations, using sound judgment, goal alignment, customer focus, and continuous development and work process improvement," says Gill. "We introduce those questions in our behavioral interviewing. Past performance is an indicator of future performance. We see how people have worked through things in the past to see how they would deal with like situations in our organization." Dixon points out other criteria. "Drug discovery is a team effort," he says. "The ability to work in multidisciplinary situations is critical. It requires so much coordination throughout the entire process that you must be able to focus on goals. People are counting on you to deliver what you promise on time."

Bayer sees experience as critical for students interested in working for a pharma company. "They have to get in the lab as soon as they can," says Dixon. "Undergraduate research represents a key opportunity. Get experience at the university doing independent research to make sure that the laboratory is really for you." Gill concurs. "Be in the lab as opposed to just taking a class," she adds. "Take advantage of summer internships and cooperative projects at the Master's and Bachelor's level. And if you're a Ph.D., take advantage of industrial postdoctoral opportunities that will show experience in the pharmaceutical environment and make you more marketable down the road."

MADISON, Wisconsin: An eight-year-old company that went public in February of this year, Third Wave Technologies, Inc. creates products and technologies for analyzing genetic variations. "Our business increases every month," says Zeke Komjathy, vice president of marketing and sales. That demand has stimulated a growth

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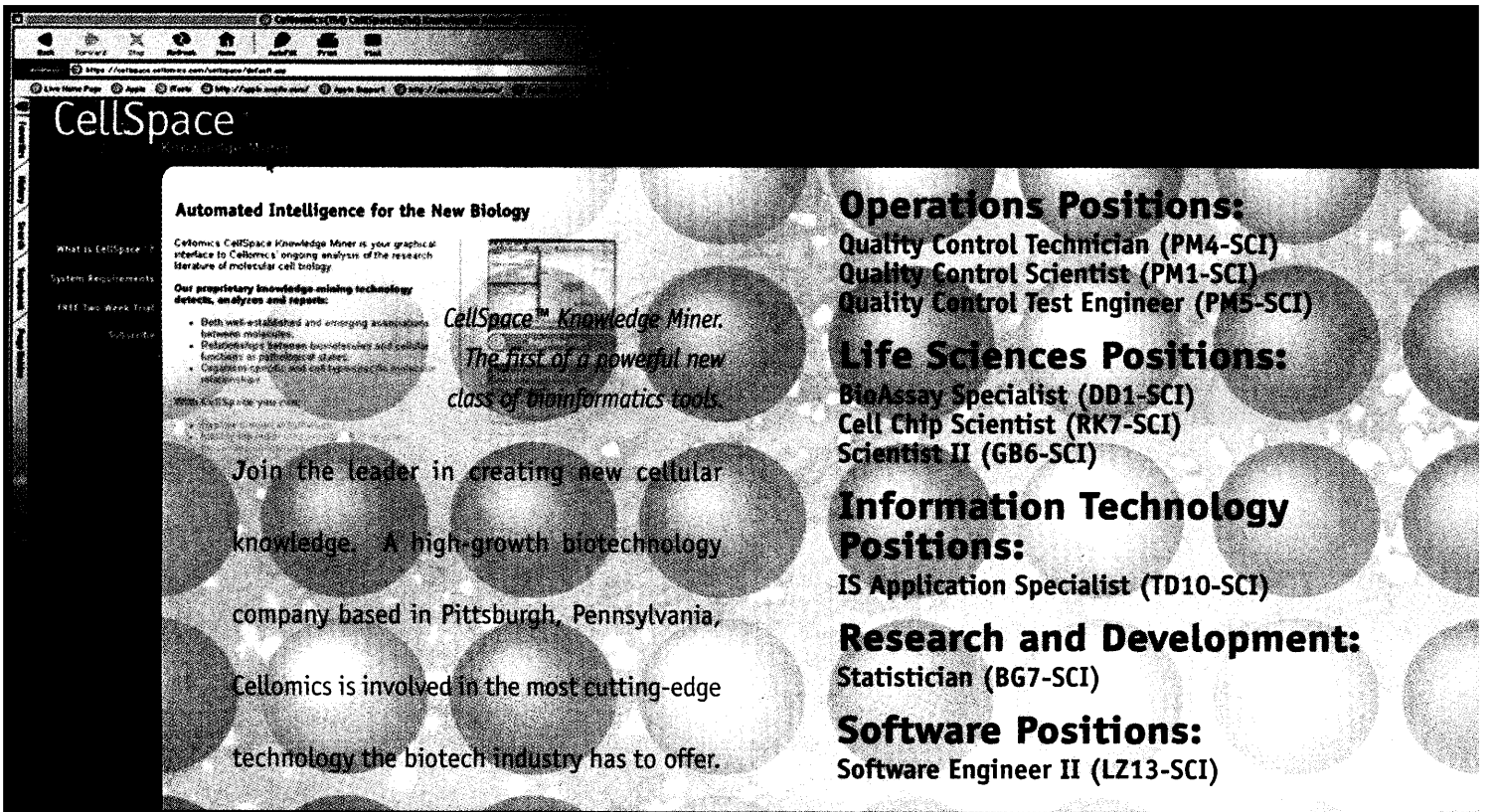

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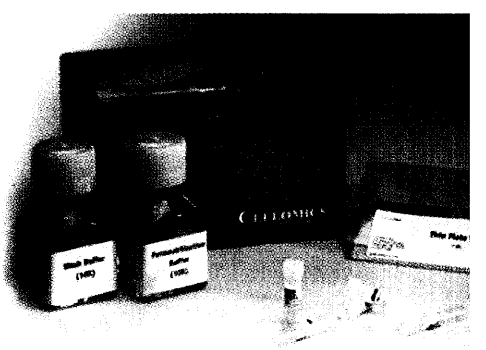

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Investigator/Sr. Investigator
Capitalize on your creativity and the ability to translate ideas into action within an energetic environment by exploring this opportunity to discover novel compounds which modulate host responses to viral/bacterial pathogens. Lead multidiscipline teams and initiate bold new approaches to anti-infective drug discovery. Your expert knowledge of immune function and cellular signalling pathways in infection models will be exploited to identify host response targets of infection. A Ph.D. in Biology, Biochemistry, Molecular Biology, or Microbiology, along with 5-8 years of post-doctoral research experience and an excellent record of achievement are required. Expertise in cell-based screening, mechanism of action studies and drug discovery experience is preferable. (Job Code: 01-0059)

Investigator
Using your broad expertise in biochemistry and/or molecular biology, you will work to develop bacterial systems for use in antimicrobial target discovery and exploitation. Selecting, designing, planning and conducting experiments as well as interpreting data and making decisions on future studies will also be a vital part of your role. A Ph.D. in Biology, Biochemistry, Molecular Biology, or Microbiology along with 1-3 years of post-doctoral experience and extensive theoretical understanding of the areas as applied to antibacterial research are required. In addition, an understanding of the physiology of relevant bacterial pathogens and the action of antibiotics is also necessary. Expertise with bacterial protein synthesis inhibitors, bacterial whole-cell screening formats, bacterial reporter gene technology, and/or evaluation and characterization of antibacterial agents is desirable. The ideal candidate will also be a creative and flexible scientist who possesses strong interpersonal skills and demonstrates the ability to work effectively in a multi-disciplinary team environment. (Job Code: 01-0936)

Post-Doctoral Research Fellowship
A post-doctoral position is available immediately to develop genomic technologies, including regulated gene expression systems and microarray analysis, to be applied to antimicrobial compound mode of action analysis. A Ph.D. in Microbiology or Molecular Biology with experience in molecular biology techniques (including PCR, gene cloning, and nucleic acid hybridization) is required. (Job Code: 01-0492)

Associate Scientist/Scientist/Sr. Scientist
You will play a key role as part of a high performance team, responsible for performing research on projects related to host defense and signal transduction resulting in the identification of novel therapeutics. These studies will require expertise in utilizing a variety of *in vitro* techniques including cell culture, molecular biology and biochemical analyses. The candidate should have good interpersonal and communication skills and the ability to work effectively within a team. This position requires a BS (MS preferred) and minimum 1 year of relevant laboratory experience. (Job Code: 01-0111)

Associate Scientist/Scientist/Sr. Scientist
As part of a team, you will develop, characterize and implement animal models for the evaluation of novel antimicrobial agents and development candidates in infectious disease animal models. Accurate scientific data and records of work performed is necessary. A BS in Microbiology or related field, along with strong animal model and small animal surgery experience is needed. Knowledge of pharmacokinetics would be useful but not essential. Experience in the pharmaceutical industry is preferred as are strong team-work and communications skills. (Job Code: 01-0017)

Sr. Scientist/Associate Investigator/Investigator/ Sr. Investigator
As a member of a multi-disciplinary team, you will lead or participate in research aimed at the discovery, evaluation, and development of novel therapeutic agents for modulating host-pathogen interactions. Research will focus on *in vivo* or *in vitro* models of microbial infection. You will evaluate the efficacy of novel compounds and study their mechanism of action using advanced molecular, immunological, and microbiological techniques. We require a detailed understanding of Immunology, Molecular Biology, Pharmacology, or Microbiology equivalent to a Ph.D. and 3-8 years of post-graduate experience. Excellent written and oral communication skills are essential. (Job Code: 01-0193)

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Protein Chemistry

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

Genomics/Bioinformatics

Research Scientists

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

Research Associates

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

Bioinformatics Scientists

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

Cell Biology

Research Scientists

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

Research Associates

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

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

Molecular Biology

Antibody Engineering/Phage Display (Scientists)

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

Mammalian Expression (Senior Scientist, Scientist, and Research Associates)

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

Process Development

Senior Process Development Scientist

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

Senior Process Development Scientist

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

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SCIENTISTS – *MOLECULAR GENETICS* Job Code: MGSCI01
We are seeking scientists to participate in our efforts to define gene function using targeted mutagenesis in embryonic stem (ES) cells. Requirements include a Ph.D. in Molecular Biology or related field, 3 years post-doctoral experience, and proven expertise in the field of gene targeting with skills including: DNA manipulation, genomic library screening, targeting vector construction, genomic Southern, PCR and sequence analysis. Excellent communication skills, a willingness to train and supervise technicians, and the ability to manage multiple projects within defined timelines are required.

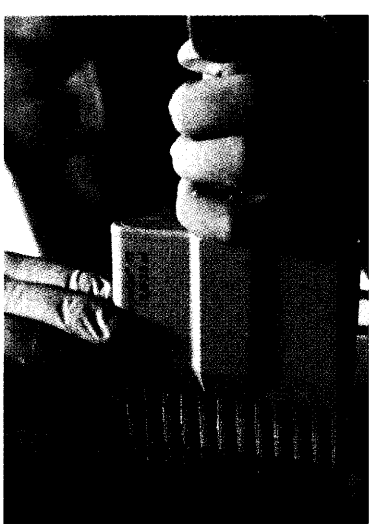
SCIENTISTS – *GENE TRANSFER TECHNOLOGIES AND THERAPEUTICS* Job Code: GTTT01
We are seeking scientists to explore gene transfer technologies for defining gene function and discovering drug targets. Successful candidates will design and prepare vectors for *in vivo* gene transfer and participate in multiple exciting discovery projects. Qualified candidates must possess a Ph.D. in either Virology, Molecular Biology or Cellular Biology and 2-5 years post-doctoral experience in a related field. Preference will be given to candidates with experience in viral vector construction (e.g. Adenovirus, AAV), gene regulation, TaqMan PCR, cDNA library construction and protein purification. Candidates must have good communication skills and work effectively in a team environment.

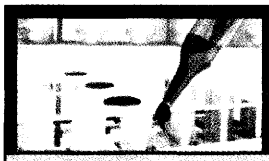
LEXICON

RESEARCH ASSOCIATES AND SENIOR RESEARCH ASSOCIATES – *MOLECULAR GENETICS* Job Code: MGRAS02
We are seeking research associates and senior research associates to further our goal of using targeted mutagenesis in embryonic stem (ES) cells to define gene function for drug discovery. Candidates must have experience in multiple aspects of molecular biology including PCR, gel electrophoresis, Southern blotting and DNA vector design/construction. Successful candidates will be expected to handle multiple projects with defined timelines in a high-throughput manner. Requirements include a master's or bachelor's degree in the life science field.

RESEARCH ASSOCIATE / ASSOCIATE SCIENTIST – *MOLECULAR BIOLOGY* Job Code: MBRAS02
We are seeking a research associate/associate scientist to fill a key position in the Molecular Biology Department. Qualified candidates will possess a master's or bachelor's in a life science field with experience in a Molecular Biology lab. Preference will be given to candidates who possess skills in: DNA/RNA manipulation, PCR, gel electrophoresis, sequence analysis, the ability to manage multiple projects simultaneously and experience in an industrial setting with small molecule, high throughput assay development and/or implementation as well as familiarity with high throughput screening instrumentation.

To apply, please submit your resume with cover letter indicating the job code of the position you are interested in to lexscience@saztec1.com or mail to Human Resources, Lexicon Genetics Incorporated, 4000 Research Forest Drive, The Woodlands, Texas 77381-4287, USA, or fax to 281-863-8050. For more information about these or other career opportunities at Lexicon Genetics, please visit our web site at **www.lexicon-genetics.com.**





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Molecular & Cellular Biology

Senior Scientist

This position requires a Ph.D. in molecular immunology with a specialization in inflammation research. Familiarity with both signal transduction and general immunological assays and at least 2 years post-graduate experience.

Target Discovery and Bioinformatics

Senior Scientist/Molecular Biologist

We are seeking an individual with a broad knowledge of gene cloning strategies, and protein expression. The applicant should hold a Ph.D. or MD degree and greater than 3 years post-graduate experience.

Pharmacology

Senior Scientist

Requirements include a Ph.D. in Pharmacology and a minimum of 3 years post-doctoral experience. Working knowledge in the area of inflammation-based *in vitro* cellular assays, *in vivo* models of airway disease, applied histology, and aerosol technology.

Research Associates

We have several openings for Research Associates with *in vitro* and *in vivo* experience. Requirements for these positions are a BS or MS in biology or immunology with 1-4 years experience in industry.

Bioanalytical

Senior Scientist

The successful candidate will have a Ph.D. in pharmacokinetics or other allied discipline with 0-5 years experience. Knowledge of bioanalytical methods development (sample extraction and MS/MS analysis) is necessary.

Medicinal Chemistry

Principal Scientist

This position requires a Ph.D. in synthetic organic chemistry along with post-doctoral training in the same area. In addition, a minimum of 6 years of successful, small molecule, drug discovery experience in an industrial environment as evidenced by patents and publications is required. Applicants must also have at least 3 years of experience supervising other Ph.D. and MS chemists.

Senior Scientists/Research Associates

We have several openings for candidates who have experience in multi-step organic synthesis and contemporary purification techniques.

Analytical Chemistry

Research Associate

This position requires a BS or MS degree in chemistry, 1-5 years of industrial laboratory experience, and strong skills in analytical chemistry with particular emphasis in LC/ESI/MS techniques.

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Pharmaceutical Development

GlaxoSmithKline joins together the talented people of Glaxo Wellcome and SmithKline Beecham to create the world's leading research-based pharmaceutical company. We're the market leader in four of the five largest therapeutic categories, with unrivaled global marketing strength and powerful R&D and Manufacturing capabilities supporting a research spend of $4 billion and sales of $24.9 billion annually. Due to the merger, we currently have openings worldwide in our New Chemical Entities Pharmaceutical Development organization, which is dedicated to making science-driven formulation an enabler for our products. We can only do this by attracting and keeping the best people - our competitive advantage. If your goal is to work with a sense of urgency to deliver innovative medicines made better by formulation sciences, now is the time to join our team, at our state-of-the-art facility located in suburban Philadelphia, PA.

Product Development Scientists

GSK's New Chemical Entities Product Development Department is team-based, with formulators and analysts working together to effect product development. We have openings for both formulation and analytical scientists.

Formulation Scientist
You will perform activities to enable the progression of New Chemical Entities from candidate selection through product launch. These activities will include designing, conducting, and interpreting pre-formulation studies, and developing robust formulations and manufacturing processes for clinical and ultimately commercial drug products. Additionally, you will contribute to the preparation of regulatory submissions worldwide and be responsible for transferring the manufacturing process to the site of commercialization. We require a BS, MS or Ph.D. degree in a pharmaceutically-related field with at least 2 years of formulation development experience and a good understanding of the later phases of product development. Demonstrated team working skills within a peer group and knowledge of GMP and regulatory issues are also required. (Job Code: 01-0477)

Analytical Scientist
You will perform activities that enable the progression of New Chemical Entities from candidate selection through product launch. To this end, you will be responsible for analytical characterization of drug substance and finished product, including pre-formulation studies, characterization of prototype and final formulations, conductance and interpretation of stability studies and elucidation of drug degradation pathways. Activities include analytical method development, validation, and transfer to the site of commercialization. You will also be responsible for evaluating and implementing new analytical methodology within Pharmaceutical Development's team-based structure. We require a BS, MS or Ph.D. degree in a pharmaceutically-related field with at least 2 years of pharmaceutical analysis experience and a good understanding of the later phases of product development. Demonstrated team working skills within a peer group and knowledge of GMP and regulatory issues are also required. (Job Code: 01-0725)

Developability Scientists

GSK's R&D organization has established a process for evaluating discovery lead candidates based on their likelihood of success in subsequent development, which is called Developability. GSK's New Chemical Entities Pharmaceutical Development Department is responsible for assessing the pharmaceutic aspects of Developability. This Discovery/Development interface function is critical for enabling progression of promising discovery leads from a pharmaceutics perspective.

Team Leader
You will lead a team of scientists responsible for enabling the progression of new chemical entities from promising discovery leads to drug candidates using formulation approaches to enhance a compound's developability. These activities include screening and selection of salt and solid-state forms, physicochemical characterization of promising leads and biopharmaceutical evaluation of drug substance candidates to better understand the barriers to compound progression from a formulation perspective. You will be responsible for identifying and implementing formulation technologies that enhance biopharmaceutic performance. You will also serve as the Pharmaceutical Representative on Discovery Program Teams, as well as guide Discovery Scientists on the enabling formulation capabilities of the New Chemical Entities Pharmaceutical Development. We require a Ph.D. in a pharmaceutically-related field with at least 5 years of experience in pharmaceutical development, and an understanding of the early phases of product development from discovery to candidate selection. Demonstrated team working skills with a peer group and knowledge of GMP and regulatory issues are also required. (Job Code: 01-0752)

Team Members
You will be responsible for conducting and interpreting experiments designed to establish the developability attributes of compounds from a formulation and biopharmaceutics perspective. These activities include physicochemical characterization, stability assessment, and provision of preclinical formulations to assess a compound's biopharmaceutical performance. Additionally, when required, you will implement new technologies to enhance a compound's biopharmaceutic performance. We require a MS or Ph.D. with at least 2 years experience in a field related to pharmaceutical product development with a good understanding of the early phases of product development from discovery to candidate selection. (Job Code: 01-0753, Job Code: 01-0754, Job Code: 01-0755, Job Code: 01-0756, or Job Code: 01-0757)

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CAREERS IN
Biotechnology and Pharmaceuticals

spurt in hiring. "We have grown at a rate of 100 to 110 percent per year recently," says chief operating officer Rocky Ganske.

The company needs scientists for both bench work and tasks outside the laboratory. For the lab, says Ganske, "We want scientists with specific knowledge in our area of technology, which focuses on DNA structure and sequence."

The research group accounts for about 60 of Third Wave's total of 280 employees. About half of the researchers have Ph.D.s, while half of the remainder possess M.S. or B.S. degrees. The main hiring problem there is finding managers with experience in biotechnology. That's hardly surprising. "The field of manufacturing high throughput genetic assays is only 5 to 6 years old," explains Ganske. "We would like managers with 10 to 15 years experience, but they don't exist."

Ganske has concrete expectations for scientists and managers in the research area. "They have to be able to think on their feet," he says. "They have to be very truthful — willing to put issues on the table and trust that their colleagues will handle them in a businesslike manner. And they have to be willing and able to get their heads around situations and deal with them individually."

Outside the lab the company puts particular emphasis on product development. "The challenge is getting people with good lab skills who are willing to work in a production environment," says Ganske.

Third Wave also seeks individuals for clinical work and marketing. "We have made several hires from large companies recently on the clinical side," Komjathy says. "In marketing we look for people with relevant scientific degrees and an M.B.A. who have solid marketing and sales experience. I look to hire people who know how to plan and create milestones for themselves — people who can manage and execute their plans, people who know when they need to come back to management for additional resources and who know when they need to go back and rethink the strategy. Whether employees work in research, in operations, or in sales and marketing, they not only need to be highly proficient in the field thy have chosen, they also need to share the company's 'visions' and common goals."

SUMMIT, New Jersey: "Genome sequencing efforts have uncovered a wide array of new proteins that could be of potential value as targets for new drug discovery," says Tom Hughes, acting executive director of pharmacology for metabolic and cardiovascular disease research at Novartis Pharmaceuticals Corporation. "Now that the sequences are available we can expect rapid progress in identifying new genes and proteins of interest to the disease process."

To apply that research to the design of drugs that are both more effective and better tolerated by patients, the company seeks scientists trained in a wide range of fields. "All disciplines are hot but functional genomics disciplines are the hottest," Hughes says. "Those disciplines include model organisms, expression profiling, cloning, receptor biology, and bioinformatics. A number of the

TOM HUGHES

chemistry disciplines are also becoming quite critical, particularly entry level chemists with Ph.D. training in traditional synthetic, organic chemistry. Pharmacology is always hot. We need to be able to translate our findings into predictive disease models. Scientists with good, solid pharmacological training are hard to find." So are specialists in bioinformatics. "The field is new and it requires combined training in biology and computer science," Hughes points out.

Novartis expects to keep its scientists at the cutting edge. "A lot of the technologies we work with have evolved dramatically as a result of genome sequencing," Hughes explains. "Maintaining the skill base of our employees is critical. And when we look at new technology we need scientists at high levels who can train people below them. In the most rapidly developing areas we look for people with the highest possible skill."

What else? "We're looking for evidence of capabilities in team building, leadership, and entrepreneurial attitude," says Hughes. "Communication skills — particularly writing skills — are very important. Computer skills are also important." Equally significant is performance on the job interview. "We look for a behavioral profile that matches the organization and the job," says Hughes.

His advice for students interested in joining the pharmaceutical industry in general and Novartis in particular: "Get some experience, no matter how, to show that you have some practical background in a laboratory. Beyond that, gain access to some relevant technology or skill that would be of value to the company. We're looking for people to fill particular needs, and the closer applicants' skills come to those needs the better. And make sure that you have a reference to say that you have that skill and have demonstrated it."

DOUG WILLIAMS

SEATTLE, Washington: The results of human genome sequencing have had a significant impact on the hiring patterns of Immunex Corporation, a 20-year-old biopharmaceutical company that focuses on innovations in the science of the immune system. "We have seen some big changes in the types of people we are recruiting," says Doug Williams, the firm's executive vice president and chief technology officer. "We have shifted from hiring people skilled at cloning to those with backgrounds in bioinformatics and strong computer skills. Our work now begins with data analysis followed by biology and experimentation."

The experimentation involves the effort to find all members of protein families. "We want to examine the function of each protein and how it affects the disease process," says Williams. "We want to identify the good targets that can be altered by drugs." That requires molecular biologists of several types. "We are looking for individuals with skills in cell-based assay design," he con-

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- Sr. Research Assistant - # 01-0232

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- Research Associates - # 01-0236 & 01-0248
- Sr. Research Associate - # 01-0245
- Staff Scientist - # 01-0247
- Sr. Staff Scientist - # 01-0003

Analytical Chemistry & Formulation
- Research Assistants - # 01-0225 & 01-0226 & 01-0227
- Sr. Research Assistant - # 01-0206
- Research Associate - # 01-0228
- Sr. Research Associate - # 01-0164

BioProcessing Operations - Fermentation
- BioProcessing Assistants - # 01-0237 & 01-0238 & 01-0239 & 01-0240 & 01-0241
- BioProcessing Associate - # 01-0242

BioProcessing Operations - Purification
- BioProcessing Assistant - # 01-0244
- Bioprocessing Associate - # 01-0243

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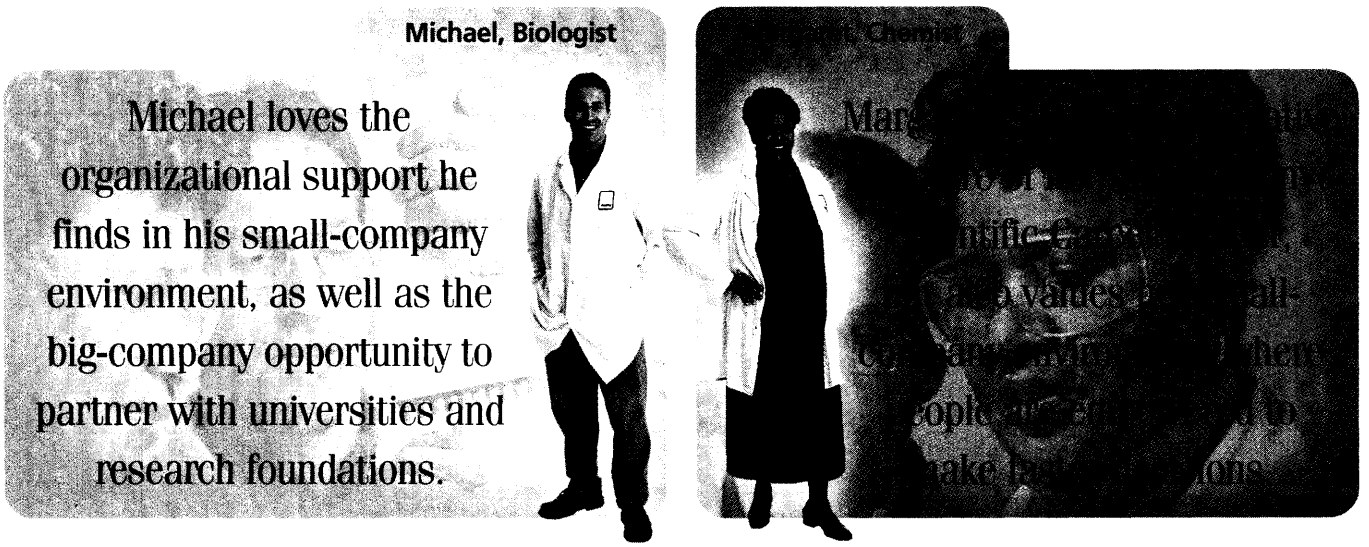

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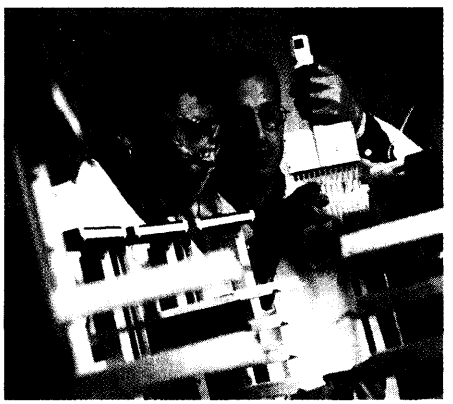
It's not about compromise—it's about realizing your vision.

As a research scientist you're passionate about the way you spend your days. You demand more from yourself and bring more to your job, your team, your organization. You'd love to find the entrepreneurial atmosphere of a small-company environment, with a process that's driven by interdisciplinary research teams. Yet you hunger for big-company resources and world-class facilities that can help you make a difference.



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AVIGEN

Avigen, Inc. is a leader in the development of gene therapy based on adeno-associated virus (AAV) for the treatment of inherited and acquired diseases. Our continued growth has created the following openings in our Alameda, Ca. facility for experienced and self-motivated professionals to join our expanding Team.

DIRECTOR OF NEUROBIOLOGY

We have an outstanding opportunity for an experienced molecular neurobiologist to assume a leadership role in a CNS gene therapy program focusing on AAV mediated delivery of therapeutic genes for treatment of neurological disorders. The successful candidate will be responsible for building and leading a preclinical research team in determining the efficacy of candidate AAV vectors in animal models of CNS disease. Applicants should have a Ph.D. or M.D. degree with a minimum of 8-10 years of experience in the neuroscience field.

PROJECT LEADER/ASSOCIATE DIRECTOR

Seeking motivated project leader to direct a group of scientists and research associates in the development of an AAV-FVIII gene therapy product. Experience in molecular biology, assay development, in vitro and in vivo gene expression, and animal models required. Good management and communication skills required. AAV and FVIII experience preferred. Candidate must have PhD and 5 years of relevant experience.

SENIOR FORMULATION SCIENTIST

As part of an ongoing expansion of our Development Group, we are seeking a highly qualified scientist to fill a key role in the development of recombinant AAV vectors for human clinical trials. The successful candidate will have a strong background in the optimization of formulation and stability of biotechnology products, ideally viral vectors. A good working knowledge of relevant FDA regulations and cGMP required. Experience in vector purification process optimization and scale-up a plus. Candidates must have a PhD, 3+ years of relevant experience, and excellent communication skills.

DEVELOPMENT SCIENTIST / PLASMID PURIFICATION

As part of an ongoing expansion of our Development Group, we are seeking a highly qualified scientist to fill a key role in the development of recombinant AAV vectors for human gene therapy. The successful candidate will be responsible for development and scale-up of processes for plasmid purification, and will have a background in plasmid production and purification at large scale. A good working knowledge of relevant FDA regulations and cGMP required. Candidates must have a PhD, 2+ years of relevant experience, and excellent communication skills.

PHARMACOLOGY / TOXICOLOGY SCIENTIST

Seeking a pharmacologist/toxicologist to design, coordinate, monitor, and evaluate GLP toxicity and biodistribution studies in support of the clinical evaluation and registration of AAV based gene therapy products. Position requires PhD in toxicology with 2+ years of industrial experience in in vivo toxicology testing. Experience with biological and viral based products preferred.

ANALYTICAL PROTEIN BIOCHEMIST

Avigen has an opening for a protein biochemist. The successful candidate will join a multidisciplinary team of scientists and will be principally involved in the structural characterization of AAV-based gene therapy vectors. The scientist will also collaborate with research and development groups on related projects such as structure-function studies and formulation-stability studies. Candidates must have a strong background in physical biochemistry and have extensive experience with protein analytical methods, spectroscopic methods, and chromatography. Extensive experience with mass spectroscopy of proteins is required. Candidates should have a Ph.D. and Post-Doctoral experience in a relevant field, and at least 2 years of industry experience.

ANIMAL FACILITY MANAGER

Opportunity for an individual to manage and supervise an animal facility. Experience with animal care and health monitoring is essential. Experience in all aspects of small animal surgery (anesthesia, intramuscular, intra portal and iv dosing, sample collection, and necropsy) required. Experience with both immuno-competent and immuno-deficient animals necessary. Familiarity with AAALAC regulations necessary. Candidate must have at least a BS degree and relevant management experience.

PRODUCTION MANAGER

Experienced individual to be responsible for planning and scheduling production research grade (non-GMP) viral vectors for gene therapy. Coordinate production plans to ensure materials are provided according to schedules and provide input to management concerning review prioritization and status of production orders. Monitor routine production process and identify parameters affecting performance. Coordinate report of assay results. May supervise 1-3 teams of associates in the production process. Position requires a Bachelors degree or equivalent with a minimum of 5 plus years of related experience and previous supervisory experience.

We also have openings for the following positions. Please check our web site for detailed job information.

Materials Coordinator
Development Associates
Research Associates
Quality Assurance Associate
Quality Control Analyst
Patent/Business Development Assistant
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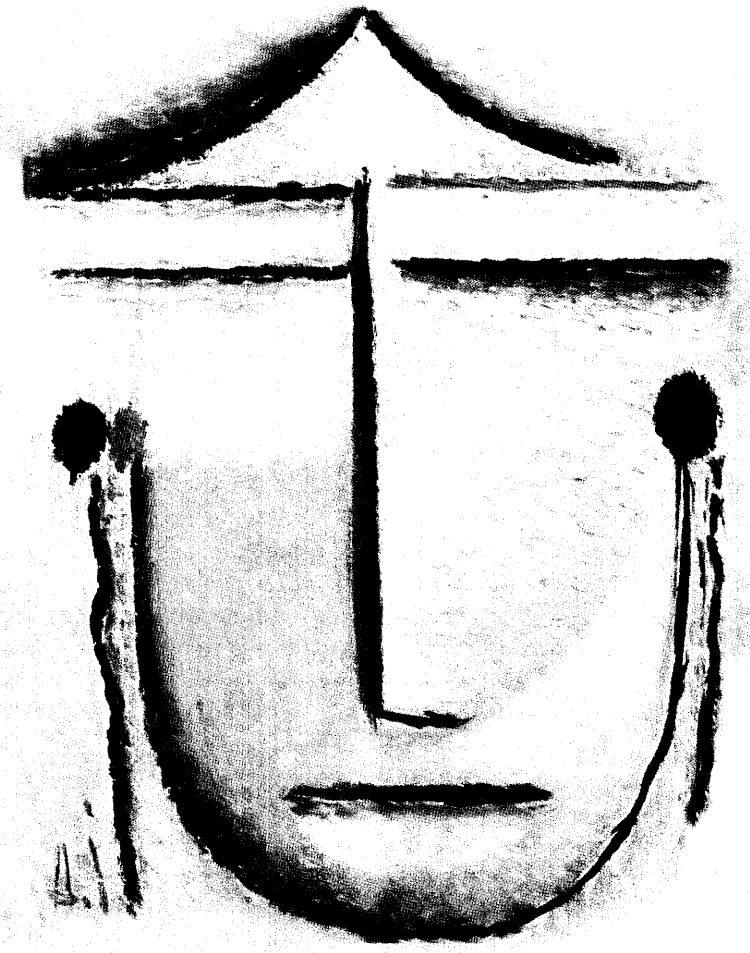

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tinues. "Cell culture and modeling skills also become critical, as well as an understanding of molecular modeling. We also work with both low throughput and high throughput assays using robotics. So we are interested in individuals with experience in these systems."

Immunex aims to fill vacancies of two broad types. "One is for infrastructure. We need individuals to clone genes and set up and run assays. These individuals execute existing programs," Williams explains. "The other is in the area of cell biology. Those individuals are usually Ph.D.s or postdocs with several years of experience. It's very important that they have experience in the medical side as well as the scientific. An M.D.-Ph.D. would be the exact phenotype of the scientists we are looking for."

The company also seeks scientists to work outside the laboratory on such areas as extramural collaborations. "Those individuals may write INDs, work on technology transfer with academic institutions, or participate in new business development," Williams says. "They are essential to ensuring that we accomplish our overall mission."

Williams regards presentation skills as vital for all the company's recruits. "Scientists must be able to articulate what they are doing, why they are doing it, and how it is being done," he says. "Individuals at Immunex must also be able to work in a matrix setting and be team oriented. We are rather project oriented in our focus. We shift to meet the needs of the company, not to build empires."


ROBERT BOOTH

PALO ALTO, California: Genome sequencing has had a major impact on the mission of pharmaceutical company Roche. "It's a new tool, like molecular biology," explains Robert Booth, head of the inflammatory unit and senior vice president of inflammatory and bone diseases for Roche Bioscience. "It has revolutionized our ability to find more tractable drug targets. It will help us to identify the underlying causes of disease instead of just the symptomatology."

To do so, Booth explains, "We've embarked on genetics in a broad way. We have increased our collaborations with our diagnostics division. And we have started proteomic activities that we're using to identify new targets and to validate and screen for some of the targets we have."

That work doesn't preclude the need for traditional scientists. "Genetics and bioinformatics are emerging as key fields," says Booth. "But the disciplines that are still hot in the industry are analytical chemistry, biochemistry, and particularly medicinal chemistry. Our primary focus is on small molecules and medicinal chemists make the molecules."

Roche's hiring focuses on both newer and more established fields. "We're actively hiring at the Ph.D. and Bachelor's level," says Booth. "We want specialists in all of the above disciplines in addition to pharmacology. Outside the lab we're recruiting specialists in information management and information technology."

What of other qualifications? "We're looking for people who can operate in multidisciplinary teams," says Booth. "Very good communications skills are an asset because of the environment in which we operate. Enthusiasm is another trait that's often missed. We look for scientists who want to change the world by developing new medicines."

Beyond enthusiasm, potential entrants to the pharmaceutical industry need a solid foundation in research. "Get the very best scientific training and analytical skills," Booth advises. "Engage in some practical project that enables you to develop and refine those skills. And where possible develop the necessary interpersonal capabilities. There are places in industry for solitary individuals, but most scientists have to interact with many different people."


MARK TRUSHEIM

CAMBRIDGE, Massachusetts: "We think we need 25 percent more food in the next 10 years to feed the world's growing population, and we need to produce it in a way that conserves the environment by using less land and water," asserts Mark Trusheim, co-president of Cereon Genomics. "To help do that, we are deeply involved in systematically discerning the function of every gene in the plant genome. We're using the full suite of tools, including genetic mutations and metabolic profiling, to connect each gene to its function. It's extraordinarily exciting detective work to see which pieces of the puzzle fit which in creating plants important to us, such as those more resistant to drought or with higher oil or protein content."

photo by Boston Globe staff: David L. Ryan

Cereon has more flexibility to perform its mission than companies working other organisms. "We can use plant breeding to elucidate function. That's difficult with animals and humans," Trusheim explains. "We produce hundreds of thousands of new genomes every year. We generate SNP markers that we can use in the breeding process to follow the best groups of genes that we create in crossing plants."

The company seeks to hire a wide spectrum of scientists. "We have constant openings as we continue to grow," Trusheim says. "Everything is done in large teams with lots of challenging roles for people with all levels of training, from Bachelor's degrees in biology and molecular biology to postdoctoral training in bioinformatics. Outside traditional scientist positions we have tremendous opportunities for everyone from lab automation experts to process engineers to patent scientists."

Cereon seeks several nonscientific qualities in every applicant. "You have to have a strong sense of teamwork and collaboration," states Trusheim. "Genomic science is cross-disciplinary and combines discovery with product development. You have to

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Roche

Bioscience

At Roche Bioscience, we are committed to innovation in the discovery and clinical development of human pharmaceuticals. Our Inflammatory Diseases Unit pursues new medicines for arthritis and respiratory diseases, while our Neurobiology Business Unit is focused on novel therapies for diseases of the lower urinary tract and central nervous system disorders. Our park-like campus in Palo Alto is equipped with cutting-edge technologies and instrumentation.

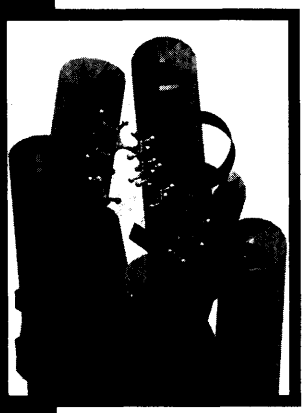
ARTHRITIS BIOCHEMISTRY & CELL BIOLOGY

Principal Research Scientist

Will lead a group in the discovery/evaluation of potential new targets in arthritis, propose ideas, formulate and conduct experiments towards the identification, expression and evaluation of these novel targets. Will analyze and report findings, make presentations, participate in multidisciplinary project teams, and provide leadership. May lead project teams. Requires PhD or equivalent in Biology, Biochemistry, Molecular Biology or related field with 7+ years of experience in inflammation, immunology or a related field. Experience with cellular pathways of RA/OA, apoptosis and a proven track record in target discovery in an industrial setting is preferred. Job Code: 2431-SCI

Research Scientist I/II

As part of a group involved in the development/evaluation of potential new targets in inflammation, you will propose ideas and formulate and conduct experiments towards the identification/evaluation of these targets. You will analyze and report findings. Requires a PhD or equivalent in Cell Biology, Biochemistry, Molecular Biology or related field and 0-4 years relevant experience. Must have experience with the usual techniques, including protein expression/cloning and functional genomics. Job Code: 2429-SCI



Research Associate II/III / Research Scientist I

Working towards the discovery/evaluation of potential new biological targets, you will conduct experiments with minimal supervision, analyze data, and report conclusions. You will interact with other biologists and scientists in other disciplines. The Research Associate position requires a BA/BS in Biology, Biochemistry, or related field with 3-5 years experience or an MS or equivalent and 1-5 years experience. The Research Scientist position requires a PhD or equivalent and 0-4 years experience. You must have strong knowledge of biochemistry, cellular biology and/or molecular biology and good laboratory techniques. Job Code: 2430-SCI

Research Associate III/Scientist I

Working on discovery efforts, you will be responsible for developing/implementing novel experimental models of arthritis/inflammation and assays that will directly impact the success of projects from exploratory stages to the clinic. You will assist in the validation of novel targets for arthritis and oversee ongoing assays that are currently used to characterize lead molecules. Requires PhD or equivalent in Biology, Immunology, Pharmacology with 2-4 years postdoctoral experience, or an MS in Biology or related discipline with 10+ years of experience. A strong background in developing/implementing *in vivo* models of chronic inflammation is necessary. Supervisory experience desired. Job Code: 2409-SCI

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BIOANALYSIS AND DRUG METABOLISM

Research Associate or Scientist

You will participate in the elucidation and optimization of pharmacokinetic properties of novel anti-infective compounds for discovery, preclinical, and clinical development. Your responsibilities include developing and validating HPLC assays to evaluate the pharmacokinetics of compounds and their metabolites in preclinical models. Additional duties include set-up and performance of assays for drug metabolism and transport in *ex vivo* systems, such as tissue microsomes or cell cultures (e.g., Caco 2). The ideal candidate will have experience with HPLC/MS/MS and other detection systems for quantitation of compounds in biological matrices. Experience in high-throughput methods, GLP procedures, data acquisition software, and standard statistical procedures/software is preferred. Qualified candidates will have an undergraduate or graduate degree in Pharmacology, Chemistry, Biology, or related field and 2+ years laboratory background with hands-on experience in analytical methods development using biological matrices.

PHARMACOLOGY: *IN VIVO* STUDIES

Research Associate

You will conduct pharmacokinetic, toxicological, and efficacy evaluations of anti-infectives in small animal models (rodents, rabbits) in an AAALAC-accredited animal research facility. Your duties will include in-life handling and administering of drugs to animals; harvesting and processing tissues for pharmacokinetic analyses; and performing quantitative *in vitro* pharmacological assays. Qualified candidates will have a BS or MS in Biology, Pharmacology, Microbiology, or related scientific discipline with documented training or hands-on experience in handling small animals in drug evaluation protocols. Experience performing small animal surgery is preferred.

DRUG TRANSPORT AND BIOAVAILABILITY

Research Associate or Scientist

You will participate in the elucidation and optimization of pharmacokinetic properties of novel anti-infective compounds for preclinical and clinical development. Responsibilities include set-up and performance of assays for drug transport in *ex vivo* systems such as *ex vivo* tissue preparations (e.g., isolated ileal preps, Ussing chambers) or cell cultures (e.g., Caco 2). Qualified candidates will have an undergraduate or graduate degree in Pharmacology, Chemistry, Biology, or a related field and 2 years of laboratory background with hands-on experience in assays. Experience in high-throughput methods, use of GLP procedures, data acquisition software, and standard statistical procedures/software is preferred.

MICROBIOLOGY

Research Associates

We are looking for individuals with research experience in molecular microbiology and genetics to pursue molecular genetic work, focusing on multi-drug resistance efflux pumps from bacteria. You will participate in development of genetic tools and assays to identify and study the mode of action of novel antibiotics and antibiotic potentiators. This includes the discovery of inhibitors for efflux mechanisms in bacteria. Qualified candidates will have a BS/MS degree in Microbiology, Genetics, or Biochemistry and 2+ years research experience in genetics and/or molecular biology in the microbial pathogens arena.

BIOCHEMISTRY AND PROTEIN CHEMISTRY

Research Associates or Scientists

We are seeking BS/MS and PhD-level Research Associates and Research Scientists to participate in the development of target-based screens for Microcide's VALID antimicrobial discovery system. Successful candidates will have experience in molecular cloning, expression, purification, and functional assay development for bacterial protein targets that encode essential gene products, as well as with the purification of soluble recombinant proteins from a variety of expression systems (bacterial, insect and mammalian).

MEDICINAL CHEMISTRY

Research Associate

Responsibilities include synthesis of small molecules, by both solution- and solid-phase methods, for evaluation as potential anti-infective agents. Requires a BS/MS degree and at least 1 year research experience in organic synthesis. Knowledge of spectroscopic methods of analysis (NMR, IR-UV, and MS) and analytical/separation procedures (column chromatography, reverse-phase chromatography, and HPLC) is highly desirable.

IN VITRO PHARMACOLOGY AND TOXICOLOGY

Research Associate or Scientist

You will establish and perform assays using mammalian cells that assess the pharmacology and toxicology of novel compounds emerging from screens or lead candidate development programs. As a key member of the cell culture facility, you will be responsible for maintaining an inventory of supplies/cell lines in support of several research programs. Candidates should have an undergraduate or graduate degree in Pharmacology, Biology, or a related field with 2+ years laboratory experience. Experience in the propagation of cells in culture, measurement of pharmacological effects of compounds using viability or functional endpoints, metabolism, and transport /uptake of compounds is required. Experience in harvesting cells or organs for *ex vivo* work from animal systems, or use of high-throughput methods is desirable.

PHARMACEUTICAL CHEMISTRY

Research Scientist

Apply your expert knowledge of separations science and physical chemical principles to the measurement of physical properties or organic compounds, as well as to the design of appropriate oral and parenteral dosage forms for *in vivo* studies. You will also develop/validate HPLC methods and supervise the activities of an associate scientist. Requires a PhD in Organic, Analytical or Pharmaceutical Chemistry with at least 3 years experience conducting pharmaceutical/analytical chemistry in an industrial setting, or MS with at least 8 years industry experience. A sound understanding of separations technology and extensive experience in the development/validation of new HPLC assay methods are needed.

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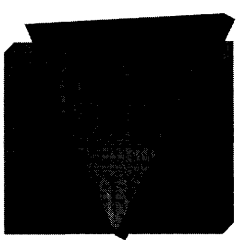

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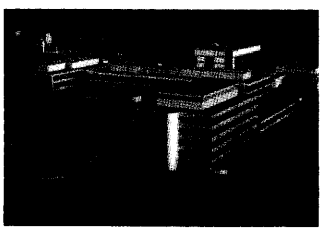

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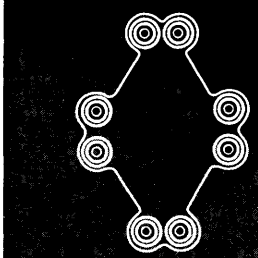

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You will conduct *in vitro* and *in vivo* efficacy and pharmacology studies. You will be responsible for the implementation and development of *in vivo* oncology and angiogenesis-related animal models and manage a pharmacology lab focused mainly on *in vivo* efficacy and high-throughput screening PK studies. Requires a PhD or equivalent with 2 years experience in a cancer research lab. Comprehensive understanding in angiogenesis, signal transduction and apoptosis pathways, and hands-on experience in *in vivo* model development required. Experience with functional genomics desired. Industry experience is preferred. Job #: 01-92

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You will be a key member of a gene discovery team applying functional genomic techniques to identify molecular targets for human pharmaceutical development, as well as creating new tools and reagents for studying model organisms. Requires a BS/MS or equivalent and 3+ years experience in molecular biology. Positional cloning, sequencing, map construction, mutation detection and familiarity with computational tools/analysis required. Job #: 01-82

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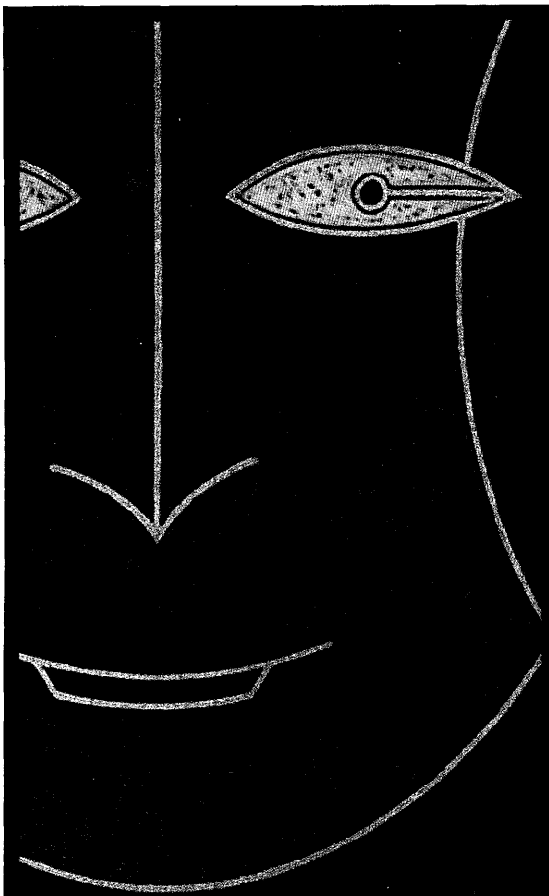

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Sr. Research Associates, Cancer Pharmacology

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Scientist I, In Vivo Pharmacology/Pharmacokinetics

Design and implement studies to determine ADME of drug candidates. Requires a PhD, 0-3 years experience in pharmacokinetics/drug metabolism and experience in PK data analysis and modeling using WinNonlin or related software.

Sr. Research Associate, In Vivo Pharmacology/Pharmacokinetics

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Soybean Yield Project: Ph.D. in Molecular Biology or multidisciplinary field that uses advanced molecular techniques. Experience in transcript profiling and recombinant DNA technologies in soybeans essential. Respond to: **http://respond.webhire.com/job/id?604-r445-J1.**

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have a strong sense of curiosity and breadth, so that you can understand issues faced by your colleagues and they can understand your speciality. And you need to foster a sense of optimism and can-do science."

What should scientists in training do to prepare for this type of work? "First and foremost," advises Trusheim, "follow the science you love, not the fields that are hot. And find a coach or two who can help expose you to the differences between industrial science and academic science."


MARK COCKETT

HOPEWELL, New Jersey: "In the past few years the industry has been investing in genomic and proteomic technologies," says Mark Cockett, executive director of the functional genomics group at Bristol-Myers Squibb Company. "Nearly all pharmas have genomic groups. We have embedded ours in our Pharmaceutical Research Institute. We work very closely with all our pharmaceutical area colleagues to apply genomic technologies in a broad swath across the whole pipeline."

Bioinformatics has become the hottest field for Bristol-Myers Squibb. "We have a much larger investment in bioinformatics than in the past," says Cockett. "Many more people are sitting in front of computers analyzing data. It's more valuable to have the biology skills and computer skills. The most marketable bioinformatics people are those who can extract value and understanding of disease processes and drug effects."

Finding bioinformatics specialists with the necessary experience is difficult. "Most of the students we see have been trained using fairly sophisticated technologies," says Lisa Alvarez-Calderon, senior director of human resources for drug discovery and exploratory development. "But they haven't been exposed to data as sophisticated as we have here."

Other key areas of focus include proteomics, genetic modeling, and target validation. "We were one of the earlier players in proteomics," Cockett recalls. "And we frequently use genetic model systems such as yeast, worms, and *Drosophila*. We have openings for worm and fly geneticists used to doing screens to follow genetic pathways. We also look for scientists with experience in miniaturization, automation, and robotics who can work on target validation."

One area stands out among the less tangible skills that the company demands of its recruits. "Bristol-Myers Squibb has made leadership our No. 1 growth priority since 1998," says Alvarez-Calderon. "We don't define it as a role solely for managers. We see it as a sphere of influence even at the level of the individual scientist." Beyond that, she adds, "We look for evidence of innovation and team-working skills. And we want early-career scientists to seek the counsel of others and to be willing to mentor each other."

How can one train for this type of career? "Some of the skills that have diminished are those more traditional to the pharmaceutical industry — biochemistry and physiology, to name two," advises Cockett. "Those are highly sought after but not by themselves. If you have those skills and a high-tech background, that combination is more powerful than any one specific skill."


JOHN BURCZAK

PISCATAWAY, New Jersey: Amersham Pharmacia Biotech had a flying start in genomics and proteomics. "DNA sequencers and reagents that we developed played a role in sequencing the human genome," says John Burczak, the company's acting vice president for North American R&D. "We've also been well positioned for several years in proteomics."

Staying ahead of the curve means recruiting specialists in the appropriate disciplines. "Bioinformatics is very hot," says Burczak. "It is tough to recruit in that area. Pharmacogenomics and functional biology are also emerging fields."

Unlike many biopharmaceutical companies, APB tries to balance hiring among Ph.D. and non-Ph.D. scientists. "Talented Master's scientists particularly are at a premium. We're always looking for them," says Burczak. "Some people with Master's degrees clearly have strong skills in areas such as bioinformatics. Industry is more of a meritocracy than academe. A talented and motivated person without a Ph.D. can go far."

APB prefers all its employees to have a diversified scientific education. "As a company we are integrating biology, chemistry, physics, and engineering," says Burczak. "We're looking for people with training in molecular biology, but also a good background that underlies it. They should take courses in chemistry, have some knowledge of physics, and even understand some engineering. In other words we're looking for someone with a degree in a relevant biology area but not an absolute specialist. We want a broad background."

To accompany that background the company looks for a multidisciplinary state of mind. "If you want to advance your career in industry today you need communication skills," says Burczak. "You're going to be interacting with multiple departments and disciplines. You also have to be a go-getter. Initiative will take you a long way. We're always looking for someone who is goal oriented, motivated, and a team player."

Burczak agrees with other executives that the best way to gain appeal as an applicant to biotechnology and pharmaceutical companies is to acquire breadth of knowledge and research experience. "We counsel undergraduate students to broaden their academic backgrounds," he says. "We also advise them to do undergraduate research projects. Having some practical lab experience makes you a safer bet. And it lets you know if industrial research is really what you want to do."

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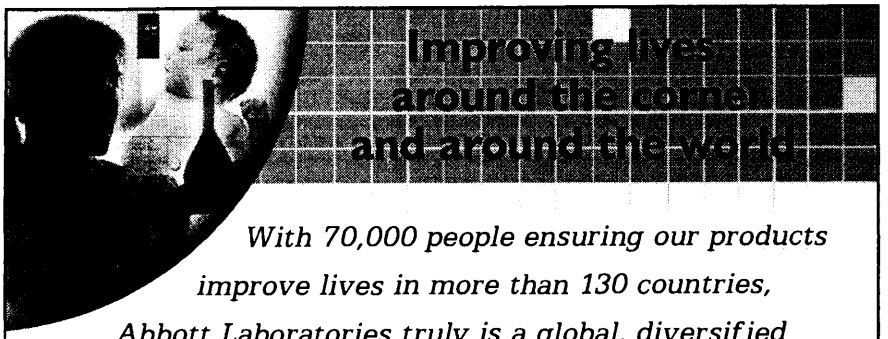

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Emory University School of Medicine Endowed Professorships in Human Genetics

Emory University School of Medicine *is seeking two distinguished faculty members with national and international accomplishments for appointments to* ***Endowed Professorships*** *in the field of human or medical genetics/genomics. The successful applicants must be recognized authorities in human genetics with outstanding records of sustained research productivity, research funding, and the promise of continued achievement, commensurate with a tenured full professor position. In addition to the Endowed Professorship, generous start-up packages will be provided.*

Both scholars are expected to develop and direct vigorous human genetics research programs. These positions will be based in the Department of Genetics, which is being substantially expanded in size and scope under the new leadership of Dr. Stephen Warren. The department will occupy one floor with state-of-the-art laboratory and office space in the soon to be completed 325,000sf Whitehead Research Building. Over the next few years, the Department of Genetics will hire at least 15 tenure-track faculty at all ranks to augment the existing faculty. The Endowed Scholars will be expected to play a significant role in the development of the department. Included within the Department is the Center for Medical Genomics with advanced instrumentation for high throughput robotics for DNA isolation, gene variation scanning, and SNP analysis. In addition, the editorial offices for The American Journal of Human Genetics *are currently located within the department.*

Emory University School of Medicine *is located on the University's 631-acre campus in suburban Atlanta. The School ranks within the top 20% nationally for NIH research support and the University's endowment ranks fifth in the country. Emory Healthcare, the clinical arm of Emory's health science center, is the most comprehensive health care system in metropolitan Atlanta, with more than 2 million patient encounters per year. Children's Healthcare of Atlanta, the nation's largest children's healthcare network with nearly 400,000 patient visits per year, is affiliated with Emory. The Centers for Disease Control and Prevention are immediately adjacent to the campus and offer unique collaborative opportunities, particularly in genetic epidemiology.*

Georgia Research Alliance Eminent Scholar in Quantitative Human Genetics

A distinguished scholar is sought for appointment to an Endowed Professorship in the field of quantitative human genetics, particularly in the area of computational or statistical genetics related to complex human disease.

This highly endowed Eminent Scholar position is being established as part of the Georgia Research Alliance (GRA) Bioinformatics Initiative. The GRA is a partnership between the state's research universities, the business community, and state government, and is designed to create science and technology-driven economic development.

Nominations and curriculum vitae should be sent to: ***The Eminent Scholar Search Committee, Department of Genetics, Emory University School of Medicine, 1462 Clifton Rd. NE, Atlanta, GA 30322; or E-mail to: gra@genetics.emory.edu.***

Robert W. Woodruff Professor of Human Genetics

A distinguished scholar is sought with national and international accomplishments in human or medical genetics/genomics for appointment as a Robert W. Woodruff Professor. Any area of contemporary human genetics will be considered, including the study of model systems when directly relevant to human genetics. Clinically active investigators are also encouraged to apply.

The Woodruff chair is among the most prestigious faculty appointments at Emory University and includes substantial endowment support.

Nominations and curriculum vitae should be sent to: ***The Woodruff Professor Search Committee, Department of Genetics, Emory University School of Medicine, 1462 Clifton Rd. NE, Atlanta, GA 30322; or E-mail to: woodruff@genetics.emory.edu.***

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EMORY UNIVERSITY

VALENTIS, a progressive biotechnology company specializing in biologics delivery, currently has excellent opportunities for self-motivated professionals to join a team of seasoned professionals in the following roles:

Quality Control Manager

You will manage/oversee all QC systems and activities in our Burlingame Center, including the implementation and transfer of analytical methods, scheduling of lab activities, evaluation and validation of test procedures and optimization of test methods for each of Valentis' products. Ensure compliance with GLP/GMP for the testing of preclinical and clinical trial material including lot release, stability programs, validation reports and all quality testing to support regulatory submissions and clinical sample analysis. Coordinate with multi-discipline teams including members of Bioprocessing, Pharmaceutics, Quality Assurance and Project Development on multiple projects. Write technical reports detailing assay development, validation, stability studies and technology transfer. Effectively manage personnel and provide technical and scientific guidance. The ideal candidate will possess a BS or MS in Analytical Chemistry or related discipline, 5 -10 yrs of QC exp with biologics & a strong technical background. He/she will also have excellent verbal/written skills and demonstrate ability to motivate & manage 2-4 analysts.

Quality Control Research Associate

You will conduct routine and non-routine analysis of raw materials, in-process material and final product, as well as samples generated from characterization of manufacturing scale-up process development. You must understand GMP lab requirements and be able to scrutinize your own results as well as the results of others; have the ability to carry out detailed tasks requiring high degrees of accuracy, possess familiarity with GMP with assays and results for Safety/Tax and Clinical Material testing, statistical analysis of data, validation of test methods, etc. Requires a BS or equivalent, at least 2 yrs of QC experience with biologics, ability to work independently, hands-on industrial experience and a strong technical background. GMP/laboratory experience, analytical assays, aseptic technique a plus.

VALENTIS is a progressive biotechnology company specializing in biologics delivery. We offer highly competitive compensation & benefits and an excellent opportunity for career growth. Qualified candidates can submit resumes (email preferred) to:

VALENTIS

VALENTIS
Human Resources
863A Mitten Road
Burlingame, CA 94010
FAX: 650/652-1980
Email: jobs@valentis.com
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The Salk Institute

ASSISTANT PROFESSOR CELL BIOLOGY

The Salk Institute offers a highly interactive environment, with a number of research groups working in areas of genetics, molecular biology and neuroscience.

The Salk Institute is seeking candidates for three assistant professor positions to undertake independent research in the area of cell structure and function as part of a new group in the Molecular and Cell Biology Laboratory (MCBL) and the Institute's cancer center. Current research in MCBL includes mechanisms of growth control, signal transduction, DNA replication, cell cycle regulation, receptor interactions, structure and function of chromosomes and nuclear organization. Cell structure and function will be interpreted broadly to encompass a variety of areas, organisms, experimental systems and techniques, including microscopy and imaging.

The Salk Institute offers a competitive salary and excellent benefits. Applicants must be legally employable in the United States. Applications will be reviewed beginning August 15, 2001. Qualified candidates are invited to submit a curriculum vitae, description of present and future scientific endeavors, and three letters of recommendation to be sent to:

MCBL Search Committee, The Salk Institute
10010 North Torrey Pines Road, La Jolla, CA 92037
Email: jobs@salk.edu (PDF files)

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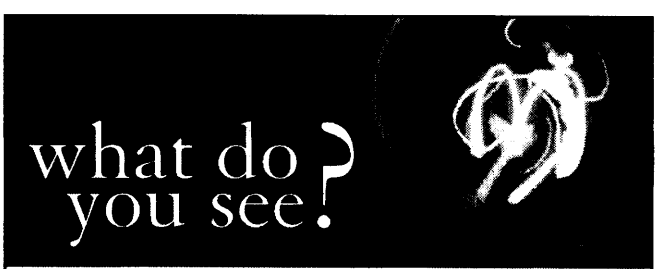
www.salk.edu



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technology licensing manager

Leading the Health/Life Sciences segment of our technology portfolio, this key individual will work with faculty to identify and evaluate inventions; develop and execute licensing and spin-off strategies; actively market discoveries to industry; and negotiate options, licenses and industry-sponsored research agreements. The ideal candidate will have an advanced degree (Ph.D.) in the biotechnology/pharmaceutical area and 5+ years of experience in technology development transfer. Demonstrated ability to formulate/close corporate deals is also expected.

The University offers a competitive salary commensurate with experience and an outstanding benefits package. Please send your resume, cover letter and evidence of your past record of deal formulating/closing to: JW, Job #B-10312A, University of Pittsburgh, Human Resources, 100 Craig Hall, Pittsburgh, PA 15260. FAX: (412) 624-8720. E-mail: resume@exchange.hr.pitt.edu. The University of Pittsburgh is an Affirmative Action, Equal Opportunity Employer.

University of Pittsburgh

MDS Pharma Services, a leading contract research service organization, has an opening in its Bothell, Washington site, located on Seattle's eastside. This location provides R&D services to the pharmaceutical and biotechnology communities.

Molecular Pharmacology Scientist Biochemical Assay Development (Position #01-08)

This position will be accountable for developing and validating molecular assays used by the pharmaceutical industry to profile new drug leads in a broad range of therapeutic areas. Responsibilities will include: methods development and validation, measurements of radioligand binding, enzyme kinetics and inhibition, and cellular responses, development of standard operating procedures, and assessment and prioritization of assay targets. Must be familiar with receptor pharmacology and signal transduction mechanisms. Position requires excellent written and oral communications skills, strong interpersonal skills, and an ability to act as a resource in technical consultations with and presentations to pharmaceutical industry clients. A Ph.D. in pharmacology, molecular biology, biochemistry, immunology, or related discipline with 2+ years of postdoctoral experience is required. Skills in molecular biology and ion channel pharmacology are desirable.

MDS Pharma Services is an equal opportunity employer. We offer competitive salary and benefit packages. Submit resume to: **MDS Pharma Services, Attn: Human Resources #01-08, 11804 North Creek Parkway South, Bothell, WA 98011. FAX: (425) 487-3787. Email: bea.kendrick @mdsps.com (Microsoft WORD attachment).**

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Senior Scientist/Target Validation

The ideal candidate should be extremely motivated with a strong interest in identification and validation of novel therapeutic targets. This position will utilize target validation technologies (antisense oligos, adenovirus and retrovirus gene expressions, etc.) to study gene functions in various cell backgrounds. The candidate will have the challenging opportunity to design *in vitro* cellular assays to test hypotheses that are consistent with DNA microarray data. Requirements: Ph.D. with 2-3 years of postdoctoral training, excellent cell biology/protein biochemistry skills, and good knowledge in genomics/bioinformatics and signaling pathways.

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Cereon Genomics' mission is to apply genomics technology to transform agriculture ... making plants hardier, naturally disease and pest-resistant, able to grow in some of the most inhospitable conditions. All to improve the quality and quantity of the world's food supply.

In the past three years, we have taken major steps in achieving our mission by:

- Completing a draft sequence of the *Arabidopsis thaliana* genome
- Building a robust pipeline of gene lead candidates
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- Bringing together a team of exceptional professionals at all levels

It is with growing amazement that we realize what we have accomplished... and what is still left to do. That's why we seek more innovators with a focused sense of urgency and a healthy sense of wonder to join us, keep our impressive momentum going, and make the future of genomics technology happen!

Research Associate

Work in a team setting on functional identification of regulatory genes in model systems. B.S. or M.Sc. with experience in molecular biology (DNA/RNA isolation, gene cloning, PCR) required. Strong interest or expertise in plant protoplast culture and transformation is desirable. **Job Code: 76-05SI**

Associate Scientist/ Sr. Research Associate

Requires experience in building plant gene identification and function for agriculturally relevant traits. M.Sc. or Ph.D. and understanding of plant physiology, metabolic biochemistry, plant genetics or related fields, excellent communication, interpersonal, and teamwork skills also required. **Job Code: 76-06SI**

Informatics Analyst

Requires M.Sc. or Ph.D. in Biology or related field, a proven ability in analyzing large volumes of biological data using computational approaches, programming (Perl, C/C++, Java) and database experience (relational, SQL queries), statistics background and experience with SAS or Splus. A desire to explore biology using a multifaceted bioinformatic approach, good organization, teamwork, communication skills, creativity, and initiative also required. **Job Code: 72-01SI**

Statisticians

Support large-scale genetic approaches to studying gene function, including transcriptional and metabolic profiling. Consult on experimental design and analysis, and develop approaches for exploring large data sets. Requires Master's or Ph.D. in Statistics or Biostatistics, Splus programming for data management, experience in statistical analysis, experimental design, and multivariate analysis. Some background in biology essential. Must be organized, detail-oriented, have excellent communication and teamwork skills. **Job Code 88-01SI**

Data Analyst

Analyze and sequence data for polymorphism discovery, validation, and genotyping assay development. Requires experience in PCR, molecular biology, and computing skills, such as UNIX, phred, phrap, pangea, and PERL. Background in plant genetics helpful. **Job code: 85-03SI**

Please send your resume, indicating Job Code, to:
Attn: Recruiter, Cereon Genomics, LLC
45 Sidney Street, Cambridge, MA 02139
Phone: (617) 551-8297; Fax: (617) 551-1990

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Scientist

Oncology/Preclinical Research

You will help design/implement molecular & immunohistochemical strategies to determine mechanism of action and to identify biomarkers for multiple preclinical/clinical drug development programs with an emphasis on oncology indications. Requires a Ph.D. in biochemistry, cellular/molecular biology or related field; 2-3 years of post-doctoral experience; success with signal transduction research; excellent biochemical and molecular biology skills, including protein and nucleic acid preparation, immunoprecipitation, western blotting and PCR; and experience with mammalian cell culture and animal handling/dosing. (Job Code: DL50078SCI-JR)

Scientist

Cell Biology

You will assist with target validation & biomarker identification, and evaluate novel protein kinases as possible drug targets in human disease. Requires a Ph.D. in cell biology, biochemistry or related discipline, 5+ years of postgraduate experience, a broad understanding of signal transduction mechanisms, and hands-on experience with a wide range of cellular and molecular techniques, including transfections, FACS, confocal microscopy, cell proliferation and migration, etc. (Job Code: EB50240SCI-JR)

Scientist

Proteomics

You will play a pivotal role in our newly formed Proteomics group. The ideal candidate will have hands-on experience preparing tissue, cultured cells and serum samples for 2D electrophoresis, proven success analyzing 2D gels, and familiarity with protein identification using MALDI-TOF MS. Requires a Ph.D. in biochemistry with 0-3 years of PostDoc experience. (Job Code: JS50229SCI-JR)

We also have openings for the following positions:

- *Toxicologist*
- *Research Associates*
- *Analytical Chemists*
- *Proteomics Research Associates*

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SUGEN, Inc.
HR Department
Attn: (Job Code: _____)
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South San Francisco, CA 94080
FAX: (650) 837-3301
email: jobs@sugen.com
(MS Word docs only, please)
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Staff/Senior Scientist

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We are seeking a knowledgeable immunologist with strong skills in cell biology and hybridoma generation to participate in an effort to generate and characterize antibodies for their therapeutic potential in cancer. The chosen candidate will be an important participant in a recently announced functional genomics collaboration. Candidates must have a PhD in immunology, cell biology or a related field with 3-6 years of relevant industrial/post-doctoral experience, along with a strong background and experience in cell/tumor biology. Experience with immunohistochemical methodologies a plus.

Please visit our website for a complete job description. PDL offers competitive salaries/benefits & attractive stock options.

Send resumes to:
Protein Design Labs, Inc.
HR Department, Attn: Job# 795-SC
34801 Campus Drive
Fremont, CA 94555
FAX: (510) 574-1448
Email: careers@pdl.com.

www.pdl.com EOE m/f/d/v

LumiCyte Visit our web site at www.lumicyte.com for other positions in **Protein Discovery, Surface and Polymer Chemistry & Bioinformatics**

LumiCyte is a world leader in providing new medical knowledge by utilizing its patented Protein BioChips and informatics products that will revolutionize medicine. The Company expects to become the worlds leading provider of information and service products beyond the laboratory.

Senior Scientist, Data Acquisition for BioChip-based Protein Mapping and Discovery
This Senior Scientist will be part of an advanced team focused on reading BioChips with arrays of affinity capture devices designed to map trace levels of proteins in biological fluids. You will be responsible for overseeing mass spectrometric data acquisition efforts and assisting with the comprehensive data analysis of potential biomarkers from patient samples. Candidates with extensive experience in mass spectrometry (esp. SELDI), along with experience in protein chemistry and assay development are preferred. Must possess Ph.D. in Chemistry/Life Sciences and at least 6 years postdoctoral/industrial research experience.

Senior Scientist - Biomarker Characterization
This Senior Scientist will be part of an advanced team focused on the discovery and characterization of new protein biomarkers from patient samples using BioChips with arrays of affinity capture devices. Responsibilities will include comprehensive data analysis of potential biomarkers and detailed structural characterization of novel biomarkers utilizing separation science and advanced mass spectrometric methods. The successful candidate must possess experience in protein purification, fractionation and affinity enrichment, micro-scale chromatographic separation and mass spectrometry (both ESI and MALDI). A Ph.D. in Chemistry/Life Sciences and at least 6 years of post doctoral/industrial research experience are required. A strong publication record in protein characterization is essential.

LumiCyte offers a pre-IPO opportunity, competitive salary and benefits including stock options. For consideration please send your resume to **resumes@lumicyte.com Attn:#Science Jobs. LumiCyte is located at 48480 Lakeview Blvd., Fremont, CA 94538. FAX: 510-226-4901.**

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PEPTIDE CHEMIST

Micro-Chemistry Laboratory

We have an immediate opening for a Peptide Chemist in the Laboratory of Micro-Chemistry at The Lindsley F. Kimball Research Institute, a division of the New York Blood Center, located in New York City.

The candidate we select will participate in all areas of the Laboratory which performs synthesis, purification and characterization of biomolecules in collaboration with researchers at the Institute. Key laboratory services are peptide synthesis, mass spectrometry, HPLC, DNA purification and characterization, and protein isolation and characterization.

Applicants should possess a Ph.D. in Chemistry or Biochemistry with up to (2) years of experience or a MS Degree with 5+ years of experience. The ideal candidate should have experience with automated peptide synthesis, HPLC, and mass spectrometry. The candidate we select is expected to participate in research in peptide chemistry. Excellent organizational and communication skills are essential.

The position commands a competitive salary and a comprehensive benefits package.

For immediate consideration, please send your curriculum vitae to the attention of, **Dr. James G. Farmar, Laboratory of MicroChemistry, Kimball Research Institute, New York Blood Center, 310 East 67th Street, New York, NY 10021.**
Email: james_farmar@nybc.org, or
Fax: (212) 570-3195.

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

Celgene

To support our expanding drug discovery efforts in Inflammation and Oncology, the Signal Research Division of Celgene has immediate openings for the following positions:

Scientist/Sr. Scientist - Lead Discovery

We are seeking a creative, energetic biochemist with enzymology training. Qualified candidates will have a Ph.D. with 1-5 years of postdoctoral/industrial experience. Position requires knowledge and experimental expertise in biochemical assay development, validation and implementation in a high throughput format using a broad range of detection technologies. Experience in mechanistic enzymology is a plus. We work as a multidisciplinary team to characterize new enzyme and receptor targets, and to identify and characterize small molecule inhibitors in the therapeutic areas of cancer and inflammation. Individuals capable of working as part of a fast-paced, results-oriented team will succeed in this environment. Code: SSAR

Computational Chemist

Candidate will have expertise in protein modeling and structure-based drug design with 2-5 years of industrial experience. Ideal candidate will possess a Ph.D. in Computational Chemistry or relevant field. Experience in other modeling techniques (QSAR, conformational analysis, etc.), programming and UNIX a plus.
Code: SCCE

Positions commensurate with the experience level of the candidates. Celgene offers a competitive compensation package that includes equity participation. If your skill set fits the job description, please send resume indicating job code to: Celgene Corp-Signal Research Div., Attn: L. Cain, 5555 Oberlin Dr., San Diego, CA 92121, E-mail: lcain@signalpharm.com EOE

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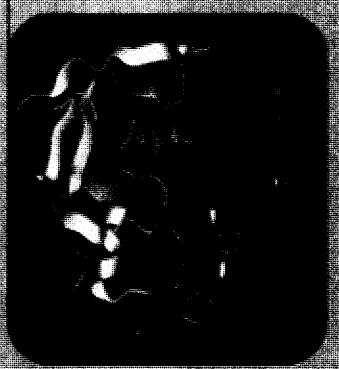
Vertex Pharmaceuticals Incorporated is leading the way in small molecule drug discovery. By pioneering a new and innovative, faster approach to drug discovery, with a focus on chemogenomics, our goal is to set the standard for pharmaceutical research and development in the 21st century. Our HIV protease inhibitor, Agenerase®, is currently marketed in partnership with GlaxoSmithKline. And we have a broad array of promising drug candidates expected to launch in the coming years. It's a pipeline packed with huge potential. And it's only at Vertex.



Biology

Investigator/Staff Investigator(s) - Genomic Pharmacology, 300-40U & 300-2

Investigator - Target Validation, 300-46

Investigator/Staff Investigator - Cell Biology, 300-10

Research Informatics

Investigator, 610-18

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- **Brand New Team**

Genesis Research and Development Corporation Limited is an innovative publicly listed biotechnology company based in Auckland, New Zealand. Its success to date is recognised through its ability to forge strong national and international partnerships as well as capture value through commercialising intellectual property.

Here are some key opportunities to join a brand new multi-disciplinary team focussed on quality research and discovery in the area of vascular biology and cell-cell communication in plants.

PLANT TRANSFORMATION SCIENTIST (Ref. D118)

You will be responsible for developing reliable transformation protocols in species utilised for vascular signaling and gene discovery. You will be appropriately qualified with a Ph.D. in Plant Biology or a related discipline and possess a solid background and commensurate experience in plant transformation. In addition, experience in the development of transformation systems for new plant species would be advantageous.

PLANT DEVELOPMENT/PHYSIOLOGY SCIENTIST (Ref. D110)

This opportunity will enable you to be involved in creating plant developmental models in flowering, and other processes that allow access to underlying vascular signaling systems. You will be an experienced Plant Developmental Biologist or Physiologist with a relevant Ph.D. in Plant Development Biology or Physiology. Whilst not essential, previous experience in floral biology would also be beneficial to this challenging role.

MOLECULAR &/OR PLANT BIOLOGY SCIENTIST (Ref. D112)

This role will allow you to be fully involved in studying and researching plant vascular signaling systems within a supportive multidisciplinary team environment. You will BS or MS qualified in Plant Biology, Molecular Biology or a related discipline, together with relevant experience and background in Plant Biology.

In all these positions, you will be required to utilise your strong verbal and written skills as well as your effective interpersonal capability. The ability to be flexible and adaptable, in addition to working in an open plan team culture and environment are all key pre-requisites for these challenging new positions.

To register your interest for any of these roles, please send your applications to:

Brent Sincock, Head of Human Resources,
Genesis Research & Development Corporation Ltd.
PO Box 50, AUCKLAND, New Zealand.
email: job.applications@genesis.co.nz
FAX: +64 9 373-5601

Applications close on 29 June 2001.

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CHIEF SCIENTIST

Earth Science & Technology Directorate

The **NASA Earth Science Enterprise (ESE)** mission is to develop a scientific understanding of the Earth systems and its response to natural and human-induced changes to enable improved prediction of climate, weather, and natural hazards for present and future generations. The Jet Propulsion Laboratory (JPL), a division of the California Institute of Technology (Caltech), plays a key role in support of the ESE mission in the areas of oceanography, solid Earth sciences, and atmospheric chemistry.

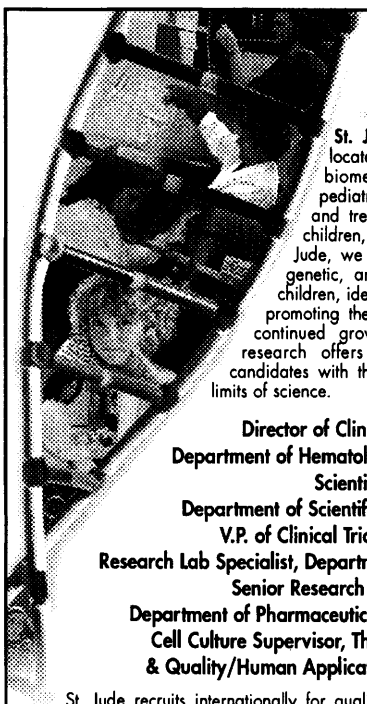
JPL seeks a Chief Scientist for the newly formed Earth Science and Technology Directorate. The Directorate Chief Scientist will be responsible for providing scientific leadership in, (1) the development of Earth System Science research programs and proposals; (2) advanced mission planning and development; and (3) advanced scientific instruments. The Chief Scientist of the Earth Science and Technology Directorate will manage program level resources, and interface with NASA HQ, science community, and industry.

Applicants should have, (1) a broad understanding of Earth System Science objectives and strategies; (2) extensive and independent Earth Science research experience; (3) familiarity with space flight experiments and missions; (4) strong leadership skills; (5) prior experience in management/leadership positions; and (6) demonstrated ability to work collegially with scientists from a wide range of discipline backgrounds.

A PhD in a physical science (Atmospheric Science, Oceanography, Solid Earth Science or related field) with 10 years experience beyond the PhD performing independent research in Earth System Science is required. Good understanding of JPL institutional requirements, policies, procedures and management practices, with significant prior experience in management/leadership position is desired. Experience in the scientific proposal review process, working with the scientific community in developing research strategies, and knowledge of the international scientific and programmatic Earth Science communities are essential. Initial appointment will be for three years with the possibility of extension.

Please send your curriculum vitae by **July 9, 2001** to: **Dr. Diane Evans, Chair of the Search Committee, 4800 Oak Grove Drive, MS-180-405, Pasadena, CA 91109**; or E-mail to **devans@jpl.nasa.gov**. JPL is an Equal Opportunity Employer.

JPL
Jet Propulsion Laboratory
California Institute of Technology



Research the Possibilities...

St. Jude Children's Research Hospital, located in Memphis, TN, is a premier biomedical research institute and pediatric hospital dedicated to the care and treatment of catastrophic diseases in children, primarily pediatric cancers. At St. Jude, we seek to understand the molecular, genetic, and chemical bases of diseases in children, identifying cures for such diseases and promoting their prevention. Our superior status, continued growth and inimitable approach to research offers extraordinary opportunities for candidates with the skills and ambition to push the limits of science.

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Scientific Editor, Department of Scientific Editing (SCI-5687SR)
V.P. of Clinical Trials (SCI-5261VH)
Research Lab Specialist, Department of Genetics (SCI-6127SR)
Senior Research Technologist, Department of Pharmaceutical Sciences (SCI-5106SR)
Cell Culture Supervisor, Therapeutics Production & Quality/Human Applications Lab (SCI-3426SR)

St. Jude recruits internationally for qualified individuals in numerous areas of basic and clinical research. While some of these openings are listed above, we encourage candidates to visit our web site to view additional opportunities. **For consideration, please e-mail resume including job code to: exec.careers@stjude.org** An equal opportunity employer.

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www.stjude.org/hr

Southampton Oceanography Centre
UNIVERSITY OF SOUTHAMPTON AND NATURAL ENVIRONMENT RESEARCH COUNCIL

BP Deep-Sea Biodiversity Research Fellowships (2 positions)

The Department of Oceanography, Texas A&M University (TAMU), USA, and the Southampton Oceanography Centre (SOC), University of Southampton, UK, invite applications for two 3-year biodiversity research fellowships, sponsored by BP, one to be hosted by SOC and one by TAMU. The goal of the Research Fellows will be to promote and improve the knowledge of deep-sea biodiversity in areas of operational interest to BP, such as the Gulf of Mexico, the Northeast Atlantic Margin and other areas, through targeted taxonomic studies on benthic invertebrates.

Applicants should posses a degree in biological sciences, and preferably a postgraduate qualification and/or experience in a subject allied to marine biodiversity. Candidates should have a good general knowledge of marine invertebrate zoology and some practical experience of taxonomy. Good information technology skills are desirable. The successful applicants will participate on sampling cruises. The BP Research Fellows will be expected to work closely together to derive additional benefits of comparing the fauna from different oceanographic regimes.

See www-ocean.tamu.edu and www.soc.soton.ac.uk/DEEPSEAS for information on the groups hosting the Research Fellowships and for further details of the two posts. For further information contact Prof. Gilbert T Rowe (TAMU, growe@ocean.tamu.edu) and Dr David Billett (SOC, dsmb@soc.soton.ac.uk).

For applicants wishing to work at TAMU, please send a current curriculum vitae, a statement of why you are interested in the Fellowship, and the names, postal addresses and e-mail addresses of three references by post to Prof. Gilbert T Rowe, Department of Oceanography, Texas A&M University, College Station, TX 77843-3146, USA, or by e-mail to growe@ocean.tamu.edu

Texas A&M University is an affirmative action/equal opportunity employer committed to excellence through diversity. Texas A&M University encourages applications from minorities, women, veterans and persons with disabilities.

For applicants wishing to work at SOC, application forms and further particulars may be obtained from the Personnel Department, University of Southampton, Highfield, Southampton SO17 1BJ. Telephone: +44 (0)23 8059 2750, e-mail: recruit@soton.ac.uk or minicom: +44 (0)23 8059 5595. Please quote vacancy reference E/23. This post will be on the Research Grade 1A salary scale.

Applications for the TAMU and SOC positions are to be returned no later than 31 July 2001. Applicants wishing to apply for both Fellowships should state this in a covering letter and send the application to their first choice institution.

DIRECTOR OF ONCOLOGY RESEARCH

The University of Tennessee Medical Center comprised of the UT Graduate School of Medicine and the UT Memorial Hospital invites applications for a new position, Director of Oncology Research. Applicants must possess a Ph.D., M.D., or equivalent degree and have appropriate post-doctoral training with a strong background in cancer research. The successful candidate will be an outstanding and active researcher with an established independent research program that has peer-reviewed extramural funding. Applicants must participate in the teaching and training mission of the Graduate School. Successful candidates must foster an interdisciplinary research (clinical oncology, informatics, molecular and cellular biology, genomics, experimental therapy and imaging) approach that will make progress on specific cancer issues. Administrative skills necessary to establish and maintain collaborative relationships with other researchers within the institution, the university, and the community are also required.

Salary, benefits and an academic appointment will be commensurate with academic rank, training and experience. Interested candidates should submit a curriculum vitae, statement of research interest, and names of three referees to: **John L. Bell, M.D., The University of Tennessee Medical Center, Director, UT Cancer Center, 1924 Alcoa Highway, Box 92, Knoxville, TN 37920. (865) 544-9572.**

The above may also be submitted electronically to: JLBell@utk.edu. *We want to thank all who apply but will only contact those selected for interview.*

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Work closely with our protein target class teams focused on structure-based ligand design within the kinases, nuclear receptors and other protein families. Successful candidates have a Ph.D. in a relevant field; several years' experience in computational chemistry, ligand-based design and virtual library design using protein structures; familiarity with Unix/Linux; and a strong background teaming with synthetic organic chemists.

We offer a competitive salary/benefits package, including cash bonus, stock options, tuition reimbursement, flexible spending account, 3 weeks' vacation, lunch & learn sessions and fitness benefits. Please send your CV, citing appropriate job title and salary history, to: **Human Resources, Structural GenomiX, 10505 Roselle St., San Diego, CA 92121; Fax: 858-622-8459; E-mail: HR@stromix.com.**

EOE

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nano type

nanotype GmbH is a Munich, Germany-based biotechnology company that has created a new interface between nanotechnology and biology. We utilize technologies that include nanomechanic force spectroscopy, genotyping and proteomics to develop innovative, highly parallel, fast and simple single-molecular interaction force assays for preclinical (target identification and drug screening) and clinical research and diagnostics. The enterprise is financed by venture capital and is majority-controlled by scientists. Physicists, biologists and chemists cooperate closely on the **nanotype** team. In a few weeks, **nanotype** will move into new laboratory space in the Martinsried area close to Munich. The Martinsried area hosts the largest biotech cluster on the European continent.

Starting September 2001, nanotype needs a

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possesses profound knowledge of molecular biology, biophysics and pharmaceutical research;
has strong management experience and has directed a research team or division, e.g. as a tenured professor, head of a pharmaceutical research division, or in an equivalent position;
has successfully managed a research budget or larger research grants and coordinated several projects simultaneously;
has substantial experience publishing results and/or obtaining patents;
enjoys taking responsibility for him/herself and others, is well organized, and enjoys hard work in a team environment;
is fluent in English; German proficiency is helpful, but not mandatory.

nanotype offers a superior work environment that features independence, support for personal and professional development, a competitive salary and a positive team culture. Equity participation will be a part of your compensation package.

Please send your CV and publication/patent list to
Prof. Hermann Gaub, chairman of the **nanotype** board, and Gunnar Brink, CEO.
nanotype GmbH, Schellingstr. 4, 80799 Munich, Germany

Apply electronically to **jobs@nanotype.de** or use the application form on our website **www.nanotype.de/jobs.html.**
We look forward to hearing from you!

At **Enanta Pharmaceuticals**, we are continuing to build a team of experienced, talented and passionate individuals. Our staff of skilled employees works in a fast-paced and highly interactive environment that rewards enthusiasm, talent and success. We recognize achievement and hard work and strongly believe that our employees are the key to **Enanta**'s long-term success and should participate in **Enanta**'s financial success.

We are rapidly growing and invite applications of motivated scientists holding **Bachelors, Masters and Ph.D.s in the Life Sciences** to join our Research and Development teams.

We are currently located in Cambridge, MA and will be moving to a new, state-of-the-art facility in Watertown, MA this fall. Please visit our website at www.enanta.com for more information about **Enanta** and detailed information on all of our current openings.

Enanta Pharmaceuticals, Inc.
Fax: (617)621-9574
e-mail: hr@enanta.com

FACULTY OPPORTUNITIES

The University of Texas M. D. Anderson Cancer Center, ranked the #1 cancer center and nominated in four other categories by *U.S. News & World Report,* is the world's largest treatment facility for oncological diseases. Located within the Texas Medical Center campus in Houston, our location provides access to a world renowned medical community and the splendid cultural and recreational diversity of a sophisticated, metropolitan area that is the country's fourth largest city.

Opportunities available in the following:

- **Biochemistry & Molecular Biology**
- **Biomathematics**
- **Cancer Biology**
- **Carcinogenesis**
- **Experimental Therapeutics**
- **Immunology**
- **Molecular Genetics**
- **Molecular & Cellular Oncology**
- **Molecular Pathology**
- **Molecular Therapeutics**
- **Veterinary Medicine & Surgery**

The University of Texas M. D. Anderson Cancer Center provides competitive salaries and generous benefits. Interested BC/BE candidates are invited to send a copy of their CV and a letter describing their clinical and academic interests to: **Glenda C. Johnston, Faculty Academic Affairs, 1515 Holcombe Blvd., Box 201, Houston, TX 77030; or e-mail: gljohnston@mdanderson.org.** For additional information **please call (713) 792-4238.**

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER
Making Cancer History™

The University of Texas M. D. Anderson Cancer Center values diversity in its broadest sense. Diversity works at M. D. Anderson. EEO/AA Smoke-free environment.

nature immunology

seeks an **ASSISTANT EDITOR**

Bored with the bench, but thrilled with the science? After our successful launch in July 2000, we at *Nature Immunology* are expanding our staff and offer an exciting opportunity to an immunologist interested in entering the editorial world. *Nature Immunology* needs an Assistant Editor to continue to develop all aspects of the journal. Assistant Editors are vital members of the *Nature Immunology* team, responsible for peer review and manuscript selection; commissioning of Reviews, Commentaries and News & Views; writing and editing. Close ties with the immunology community will be forged and maintained through travel to international meetings and visits to individual laboratories. Applicants should have a Ph.D. and post-doctoral experience in immunology, an intense curiosity and broad understanding of the field. The ideal candidate will have an enthusiasm for, and commitment to, the communication of science.

Based in our central New York City office, the *Nature Immunology* team is part of a dynamic editorial and publishing environment that includes *Nature Genetics, Nature Structural Biology, Nature Medicine, Nature Biotechnology* and *Nature Neuroscience.* The successful applicant will also enjoy a close working relationship with the London-based *Nature* and *Nature Cell Biology* teams.

To apply, please submit a CV, a short (700-900 words) News & Views–style article on an exciting and newsworthy recent development in any area of immunology and a short cover letter explaining your interest in the post to Dr. Linda J. Miller, Editor, *Nature Immunology,* Nature America, 345 Park Avenue South, New York, NY 10010 (fax 212.696.9594; email admin@natureny.com) to arrive as soon as possible and **not later than 29 June 2001**.

UNIVERSITY OF OXFORD

Professorship of Chemical Biology

The University of Oxford has recently given a major boost to exciting new developments at the interfaces of the Physical, Medical and Life and Environmental Sciences. It is in the process of filling a new Chair in Bioinformatics and of creating professorial posts in Bionanomaterials. The Professorship of Physical Chemistry has recently been refilled (Jacob Klein) and the University is undertaking developments in Bionanotechnology, Genomics and Physical Biology. In addition to these major interdisciplinary initiatives, it now wishes to make a high-profile appointment to a Professorship of Chemical Biology, newly created within the Department of Chemistry but with strong links both with other departments and with the very successful Oxford Centre for Molecular Sciences (OCMS), which concentrates on protein structures and has a substantial base within the Chemistry Department.

The construction of an entirely new £60 million Chemistry Research Laboratory, to open in 2003, will provide space and facilities of an unrivalled nature to the new professor. These state-of-the-art laboratories, and their proximity to the new Synchrotron Radiation Source, to be sited at the Rutherford Appleton Laboratory in Oxfordshire, provide a stimulating basis for further developments of the University's existing strengths in Chemical Biology and related areas.

The University intends to elect a person who, through leadership and the distinction of his or her own contribution to the field of Chemical Biology, will ensure the vigorous development of Chemical Biology at Oxford and its wider recognition outside.

A non-stipendiary fellowship at Hertford College is attached to the professorship.

Applications (ten copies, or one only from overseas candidates), naming three persons who have agreed to act as referees on this occasion, should be received not later than 17th September 2001 by the Registrar, University Offices, Wellington Square, Oxford OX1 2JD, from whom further particulars may be obtained. Further particulars may also be accessed on the Web (URL: http://www.admin.ox.ac.uk/fp/).

The University is an Equal Opportunities Employer.

GeneOhm Sciences

GeneOhm Sciences is a new, rapidly growing pre-IPO biotechnology company that is developing medical diagnostic devices to detect single nucleotide polymorphisms (SNPs) in genomic DNA isolated from patients. The Company was founded by scientists at the California Institute of Technology and has recently established its facilities in San Diego. The research and development team at GeneOhm is a multidisciplinary group of world-class scientists and engineers focused on developing medical DNA-diagnostics that provide the link between patient diagnosis and the information generated by the Human Genome Project.

We currently seek outstanding scientists to add to our DNA processing group at the level of Senior Scientist.

SENIOR SCIENTIST

Biochemistry/Molecular Biology

The successful candidate will work with chemists and biologists to develop procedures for isolating and processing genomic DNA from blood and tissue samples. Along with a strong background in nucleic acid biochemistry and enzymology, the position requires a Ph.D. in biochemistry, molecular biology, or related field, and 2-5 years of postdoctoral experience. Familiarity with protocols for isolating DNA is essential and experience with DNA microarrays and other high-throughput DNA analysis tools are desirable.

SENIOR SCIENTIST

Genomics/Bioinformatics

The successful candidate will help develop the Company's bioinformatics infrastructure to guide the development of DNA-diagnostics for applications in medicine. Along with a strong background in human genetics, the position requires a Ph.D. in genetics, bioinformatics, or related field, and 2-5 years of postdoctoral experience. Established proficiency with genomics databases is essential.

We offer a competitive salary and benefits package commensurate with the industry in a highly motivating environment. Please forward CV, including at least 2 references, with cover letter to:

GeneOhm Sciences, Inc.
6146 Nancy Ridge Drive, Suite 101, San Diego, CA 92121
Voice: 858-334-6300 - Fax: 858-334-6301

Email: info@geneohm.com

EOE

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FOR MORE INFORMATION, on the above positions, please visit our website at:

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For above positions, forward resumes to: Human Resources, Wyeth, 40 Technology Way, West Greenwich, RI 02817. Fax: (401) 392-3798; Email: resumesri@labs.wyeth.com

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Team Leader, DMPK, Pre-Clinical Drug Discovery
You will use your leadership skills and scientific knowledge to provide direction to a matrix team which leads a multi-disciplinary drug discovery effort focused on cardiovascular and urogenital diseases and oncology. You will also serve on drug discovery teams to provide guidance and data in the areas of Drug Metabolism and Pharmacokinetics. We require a Ph.D. or equivalent experience in Chemistry, Biology, or Pharmaceutical Sciences with scientifically strong expertise in all DMPK concepts. Track record of innovation with evidence of scientific accomplishment and unique, specialist expertise in a scientific area related to DMPK is also required. (Job Code: 01-0249)

Investigator/Sr. Investigator, DMPK, Pre-Clinical Drug Discovery
You will participate in *in vivo* pharmacokinetic studies, including protocol generation, study conduct, pharmacokinetic data analysis, and data reporting. You will also represent DMPK on Drug Discovery Program and Projects, and provide your internal expertise on a specialty area of DMPK. We require a Ph.D. in Pharmaceutics, Toxicology, Chemistry, Biology or an equivalent field, in addition to up to 2 years of pharmacokinetics/drug metabolism experience. Sound understanding of the principles of DMPK is also required (i.e. pharmacokinetics, xenobiotic metabolism, PK/PD modeling, analytical methodology). (Job Code: 01-0365)

Investigator/Sr. Investigator, DMPK, Pre-Clinical Drug Discovery
You will independently plan and perform analyses to identify and structurally characterize novel metabolites in biological (*in vivo* and *in vitro*) samples by LC/MS/MS. You will also troubleshoot instrumental and analytical problems, in addition to providing assistance to senior management for strategic development of drug analysis department by improving existing scientific practices, or recommending innovative technologies and instrumentation. We require a Ph.D. in Organic, Analytical, or Medicinal Chemistry, Biochemistry, or a related field, with 3 years of experience and a publication record demonstrating scientific accomplishment. Knowledge of the operation and maintenance of mass spectrometry instrumentation, especially quadrupole, TOF and ion-trap instruments is also required. (Job Code: 01-0368)

GlaxoSmithKline is dedicated to an innovative workplace and supports you with career long opportunities and learning. We offer a competitive benefits and compensation package designed to attract and retain the very best. For confidential consideration and efficient processing, please visit our web site: www.gsk.com Indicating Job Code is essential for search. Principals only, no agencies please.

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Emory University School of Medicine Tenure Track Faculty Positions in Human Genetics

*The **Department of Genetics** at **Emory University School of Medicine** is seeking qualified applicants for tenure track faculty positions, at the rank of **Assistant, Associate or Full Professor,** to join existing faculty as the department expands in size and scope under the new leadership of Dr. Stephen Warren. Candidates interested in any aspect of human genetics, including appropriate model systems directly relevant to human genetics, are encouraged to apply. We are particularly interested in candidates investigating complex diseases, cancer genetics, or genomic organizations/structure/function. Attractive opportunities also exist for physician/scientists. The department will occupy one floor with state-of-the-art laboratory and office space in the soon to be completed 325,000sf Whitehead Research Building on the Emory Campus. Included within the Department will be the Center for Medical Genomics, with advanced instrumentation for high throughput robotics for DNA isolation, gene variation scanning, and SNP analysis. In addition, the editorial offices for* The American Journal of Human Genetics *are currently located within the department. Generous start-up packages are available, commensurate with rank and requirements.*

*Applications should include a cover letter, curriculum vitae, and personal statement of research and teaching goals. To expedite processing, these materials should be sent in electronic form via email to **facsearch@genetics.emory.edu**. Three letters of recommendation are also requested, which may be sent electronically to the email address listed above, or mailed to: **Faculty Search Committee, Department of Genetics, Emory University School of Medicine, 1462 Clifton Rd. NE, Atlanta, GA 30322.** Emory University is an Affirmative Action/Equal Opportunity Employer.*

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You will discover new ways to use your pathology skills working in our Pharmacopathology Department, by providing information about the effects of drugs on cells and tissues. Your responsibilities include establishing a molecular pathology service (ISH, laser capture microscopy), assisting with stereologic analysis of tissue sections, and working with animal models of disease. In addition, you may assist with tissue preparation and immunohistochemical studies. Digitalmicroscopy and report writing are required. The successful candidate will be a Board-eligible or Certified Pathologist (MD or DVM) with 0-3 years of experience. Knowledge of molecular biology is essential; experience in cell biology and knowledge of a variety of histologic techniques are highly desirable. Proficiency in Microsoft Word, Excel, and Lotus Notes along with excellent communication, strong problem-solving, and collaborative skills are required.

Enjoy a unique work environment while you apply science to redefine life. At Berlex, you'll also find competitive salaries and a generous benefits package. For immediate consideration, please visit our website at www.berlex.com and apply online. If you mail your CV/resume, you must include the Job Code with 01-000716 on your cv/resume, and mail to: Berlex, HR Employment, 15049 San Pablo Ave., Richmond, CA 94804-0099. EOE.

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At Advanced Medicine, we've brought together some of the finest people in science. First, a world-renowned management team whose vision steers our proprietary drug discovery technology as we pursue several promising new drug candidates. And second, a world-class staff of intelligent scientists and researchers who bring advanced thinking to the table to help further the medicines of tomorrow. When all is said and done, it's our people who get things done. That's what we're all about at Advanced Medicine.

SCIENTIST/GROUP LEADER, HIGH-THROUGHPUT PURIFICATION

Assuming a leadership role in our existing group, you'll direct the high-throughput purification of important compounds (mg to gm scale) for biological analysis. Responsibilities will include maintaining state-of-the-art awareness in high-throughput purification/analysis, laboratory automation, and database management. You will need a BS/MS/PhD in a chemistry-related field and/or 2+ years relevant industry experience and demonstrated working knowledge of all aspects of reversed phase HPLC (preparative and analytical), MS, laboratory automation, and data management. The ability to work with and troubleshoot a variety of hardware/software platforms and a general working knowledge of databases will be extremely useful. Effective communication, interpersonal and mentoring skills will be crucial to foster the professional growth of 2-3 Associates and develop productive relationships with internal/external collaborators. Job Code: 01-183

SCIENTIST/SR. SCIENTIST, BIOCHEMISTRY

We're seeking a self-motivated professional with a background in electrophysiology and/or pharmacology and significant experience in the functional characterization of ion channels. You will be a key member of a team of molecular and cell biologists and electrophysiologists responsible for the development of high-throughput assays of ion channel activity and subsequent screening of proprietary molecules. You will also contribute to new target evaluation, exploratory research and lead-optimization projects. You'll need an MS/PhD and 2-5 years of postdoctoral or industrial experience (preferred), including research experience using dynamic fluorescence imaging systems for the analysis of ion channels. Excellent quantitative, laboratory and computer skills are required and hands-on experience with cell-based assay development would be an advantage. You should also be well organized with excellent written/verbal communication skills and able to work in a team environment. Job Code: 99-114

RESEARCH ASSOCIATES, MEDICINAL CHEMISTRY

As part of our integrated, multidisciplinary discovery team, successful candidates will design and synthesize novel drug candidates. The successful candidates will have established and distinguished themselves as highly productive medicinal chemists. Minimum qualifications include a BS/MS and 2+ years of industrial experience. Job Code: 00-179

As one of today's most exciting emerging pharmaceutical companies, Advanced Medicine offers a comprehensive benefits package designed to take care of our people and their families. To learn more about this opportunity, please visit our website at www.advmedicine.com. Or, if you prefer, you may send your resume, indicating Job Code, to: **Advanced Medicine, Human Resources, 901 Gateway Blvd., So. San Francisco, CA 94080, email resume@advmedicine.com or fax to 650-808-6121.** We are proud to be an equal opportunity employer.

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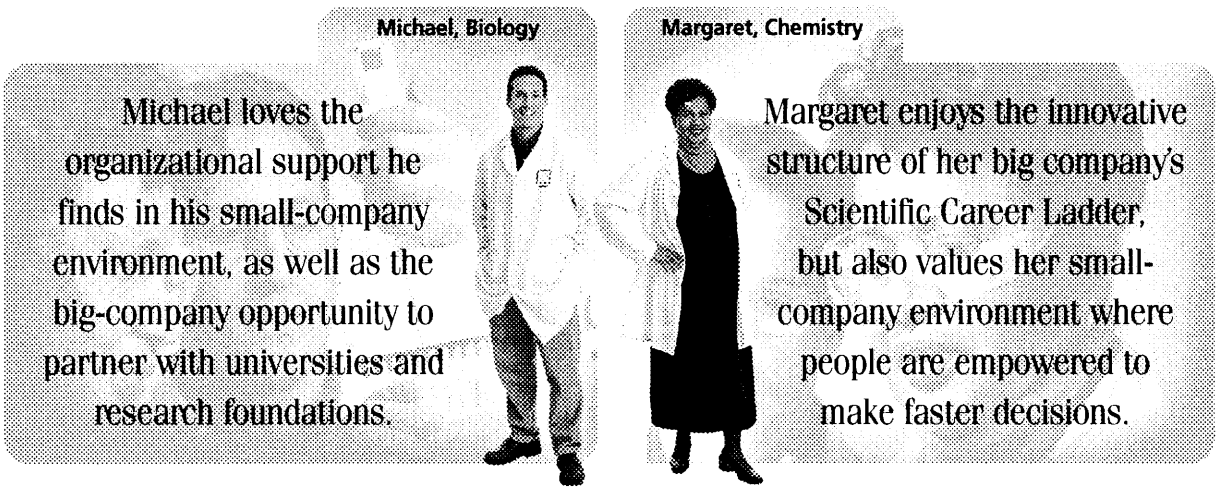

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Pharmacogenomics Team Leader (Req code: 01-0002233)

In this role, you will oversee a new pharmacogenomics laboratory and laboratory staff. This involves leading projects; executing and/or supervising experiments; and preparing technical reports and other documents.

To qualify, you must have an M.D. or Ph.D. in genetics, molecular biology, genomics or a related field and preferably 4+ years of postdoctoral experience (or equivalent). Knowledge of pharmocogenetics and the impact of genetic variation/expression profiling on disease predisposition, progression or therapy as well as SNP genotyping and automation technologies, mutation detection, expression profiling or positional cloning is desirable. A background in linkage analysis, association studies, population genomics is preferred. Familiarity with biostatistics and bioinformatics is a definite plus.

Process and Implementation Pharmocogenomics Manager (Req code: 01-0002235)

In this role, you will manage all processes related to the implementation of pharmacogenomics clinical trials studies. This involves reviewing DNA documentation; partnering with clinical investigators, academic or biotech companies and in-house regulatory, legal and marketing teams; and maintaining contacts with central laboratories. You'll also generate, implement and assure GLP compliance as well as present SOP documentation.

To qualify, you must have an M.Sc, Ph.D., M.D., pharmacist or pharm D. degree and 2+ years of postdoctoral experience (or equivalent). A background in trial management is desirable.

Project Scientist (Req code: 01-0001602)

In this role, you will design, implement and manage clinical trial pharmocogenomics projects; analyze and interpret data; and assist in external collaborations.

To qualify, you must have an M.Sc, Ph.D., M.D. or pharmacist degree and 1+ years of postdoctoral experience (or equivalent).

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Johnson & Johnson

Postdoctoral Position

A postdoctoral position is immediately available in the DNA Repair Unit of the National Institute on Aging's Laboratory of Cellular and Molecular Biology. Research in this intramural program unit focuses on DNA metabolism and repair in neoplastic diseases with special emphasis on breast cancer. Expertise in molecular biology required. Background in DNA repair and single cell gel electrophoresis (Comet Assay) preferred. Applicants must have a Ph.D. and/or M.D. with less than 5 years of postdoctoral experience.

Submit curriculum vitae and three letters of recommendation to:

Michele K. Evans M.D.
National Institute on Aging
National Institutes of Health
5600 Nathan Shock Drive
Mailbox 09
Baltimore, Maryland 21224-6825
FAX: (410) 558-8573.
Email: me42v@nih.gov.

NIH is an Equal Opportunity Employer

National Institute on Aging Staff Scientist Position DNA Repair/ Cancer Biology

Renewable position with an initial 2-year appointment for highly motivated individuals with strong background and extensive experience in cellular and molecular biology. Specialized knowledge and expertise in the biochemistry of DNA damage and repair required. Interest and background in cancer biology a plus but not required. The incumbent will have major roles in training staff and postdoctoral fellows and maintaining research continuity within the laboratory. Salary range is from $60,000-$85,000 depending on experience, scientific credentials and publication record.

Candidates for this position must have a Ph.D. or M.D. Deadline for application is July 30, 2001. Send curriculum vitae and three reference letters to: **Human Resources, Intramural Research Program, National Institute on Aging, National Institutes of Health, Box 26, 5600 Nathan Shock Drive, Baltimore, MD 21224-6825 (Attention: VA# NIA-01-023).** For further information, contact: Michele K. Evans, M.D., Laboratory of Cellular and Molecular Biology, Fax: 410-558-8268, e-mail: me42v@nih.gov.

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Roche

Pharmaceuticals

Group Leader, Protein-Protein Interaction Facility

Who we are
Headquartered in Basel, Switzerland, Roche is one of the world's leading research-based healthcare groups, operating in pharmaceuticals, diagnostics and vitamins. Roche takes pride in having always played a pioneering role in harnessing the principles of biotechnology for healthcare solutions for the market - a role which it continues to play.

The position
Roche Genetics is a multidisciplinary, trans-divisional and cross-departmental matrix organization tasked with the global coordination of all genetic, genomic and proteomic approaches within F. Hoffmann-La Roche Ltd with the ultimate goal of creating innovative therapeutic and diagnostic methods and products. As part of this organization, a small, highly specialized core unit in Basel is engaged in technology development and service provision for our pharmaceutical and diagnostic research teams. We are currently seeking to expand the range of this core unit by establishing a dedicated protein-protein interaction laboratory.

Who you are
You are a dynamic, highly motivated scientist who thrives on interdisciplinary teamwork and has excellent people management and leadership skills. You have at least 4 years' specialized experience in all aspects of yeast-2-hybrid and other protein interaction technologies. In addition, you have a strong background in process development and have experience of setting up high-throughput automated systems in protein-protein interaction or related fields. A working knowledge of appropriate bioinformatics tools is essential, although you will have a dedicated bioinformatics group assisting you. You are a creative, unorthodox thinker who likes innovative approaches. You will establish and direct a state-of-the-art laboratory responsible for continued technology improvement and service to our investigational teams.

Who to contact
If you wish to be considered for the above position, please send your application and full supporting documentation to: F. Hoffmann-La Roche Ltd, Mr Werner Aschwanden, PSPB, Building 52/205, P.O. Box, CH-4070 Basel, quoting reference: As4365.

Assistant and Associate Professor
Center for Cell Biology & Cancer Research
Albany Medical College

The Center for Cell Biology & Cancer Research at the Albany Medical College announces the availability of tenure-track faculty positions at both the Assistant and Associate Professor levels. The successful candidate's research will interface with scientific programs within the Center focusing on tissue remodeling and cancer biology. Studies by Center Faculty concentrate on molecular mechanisms regulating cell adhesion and motility, angiogenesis, growth factor- and matrix-dependent signal transduction, and gene therapy of cancer. Individuals with research interests in these areas are particularly encouraged to apply. New faculty are expected to participate in the graduate program in Cell Biology and in the Postdoctoral Training Program in "Tissue Remodeling and Cancer." The Center for Cell Biology & Cancer Research is aligned with the Clinical Cancer Center at the Albany Medical Center and opportunities exist to develop collaborations with clinical faculty in the Cancer Center as well as in the Centers for Vascular Biology, Neuroscience, and Immunology and Microbial Disease.

The level of appointment will reflect the experience of the candidate selected. Qualifications include a Ph.D. degree and a demonstrated track record of excellence in research. The applicant will be expected to maintain an independent, externally funded research program emphasizing molecular genetic approaches to problems related to Cancer Biology. Candidates for the Associate Professor position should have an active, funded, research program in an area consistent with the interest of the Center. Applicants will be expected to participate in the teaching missions of both the Graduate and Medical Schools.

Full consideration will be given to those applications received by July 30, 2001. A curriculum vitae, description of research interests, and at least three letters of reference are required; providing copies of published papers is strongly encouraged. Application materials should be submitted to:

Paul J. Higgins, Ph.D.
Cell Biology & Cancer Research (MC-165)
Albany Medical College
47 New Scotland Avenue
Albany, NY 12208

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- **Scientist, Molecular Biology**
- **Scientist, Chemistry**
- **Optical Systems Engineer**
- **Director of Proteomics**
- **Scientist, Assay Development**
- **Scientist, Expression Profiling**
- **Scientist, Surface Chemistry**
- **Financial Analyst**
- **Manager, Customer Support**

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JOINT FACULTY POSITION
DEPARTMENTS OF BIOENGINEERING AND OPHTHALMOLOGY
UNIVERSITY OF CALIFORNIA, SAN DIEGO

The Departments of Bioengineering and Ophthalmology of the University of California, San Diego invite applications for a JOINTLY APPOINTED TENURED or TENURE-TRACK FACULTY POSITION from individuals with expertise that bridges the fields of bioengineering and human retinal diseases. The successful applicant will be expected to establish a vigorous program of high-quality research that complements existing research in the two departments and addresses clinically relevant problems in one of the following areas: **applications of optical imaging methodologies to the human retina**, including such technologies as adaptive optics, scanning laser imaging systems, monochromatic imaging, optical coherence tomographic imaging, and confocal optics; or, **development of gene therapy vectors and systems for treatment of retinal diseases** and their application to animal models of such diseases as macular degeneration, choroidal melanoma, and hereditary retinal diseases. The successful candidate will have responsibilities for developing and teaching undergraduate and graduate courses in the Department of Bioengineering, as well as teaching medical and postgraduate students in the Department of Ophthalmology, and will have laboratory space in and participate in the newly formed Jacobs Retinal Research Center at UCSD. The salary will be commensurate with the qualifications and based on UC pay schedules. Please send a complete biography, samples of publications, and the names of five references to: **Joint Search Committee c/o Ms. Lore Meanley, Department of Bioengineering, Mail Code 0412, University of California San Diego, La Jolla, CA 92093-0412**. Consideration of applicants will begin on July 25, 2001.

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

Scientists

2 Positions

- Metabolic Diseases Pharmacology
- Immune & Inflammatory Diseases Pharmacology

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Tularik is a leading biopharmaceutical company focused on the discovery and development of drugs that act through the regulation of gene expression. Our development pipeline is robust, with 4 drug candidates in clinical trials. We have several opportunities for talented Scientists with *in vivo* biology experience to join our research team. You will provide expertise and leadership for our research efforts to develop meaningful animal models for proof-of-concept studies and to assist in the selection and characterization of clinical candidates.

We are interested in hearing from Scientists who have extensive expertise in the areas of metabolic diseases or immunology. Your research at Tularik will build upon molecular & cellular biology discoveries to establish innovative preclinical disease models for your therapeutic area of focus. The successful candidates will have a Ph.D. and an in-depth knowledge of physiology and molecular biology relevant to metabolic and/or immune disorders, as well as at least three years of hands-on *in vivo* biology experience. A track record of developing novel animal models useful for prediction of activity of clinical candidates is highly desirable.

If you are a talented and creative Scientist ready to take on a challenging role, we want to hear from you. Tularik offers stock options, a competitive salary and benefits package, and an exciting work environment where your contributions will make a difference. Detailed job descriptions and company information can be found on our website at **www.tularik.com**. If you are interested in joining an ambitious and dynamic company, please reference Position Code IVB/CD and send your CV by e-mail or mail to one of the addresses below:

resume@tularik.com

or

Human Resources
2 Corporate Drive
South San Francisco, CA 94080

Share *Our Success*
Help us *Make A Difference*

PRAECIS' mission is to discover, develop and commercialize pharmaceuticals through integration of proprietary combinatorial technologies and high-throughput screening capabilities. We are a biopharmaceutical company involved in innovative research and development in the areas of Prostate Cancer, Endometriosis, Alzheimer's Disease, Pain Management, AIDS and Inflammation.

We are focused on developing pharmaceutical products using our proprietary LEAP™ (Ligand Evolution to Active Pharmaceuticals) technology. LEAP combines the power of biological selection with the advantages of medicinal chemistry in a unique molecular evolution process. PRAECIS successfully employed LEAP in the development of abarelix depot, its lead candidate for the treatment of prostate cancer, and its second product candidate, abarelix depot for the treatment of endometriosis. Based on positive results in its Phase III prostate cancer clinical trials, the Company submitted a New Drug Application for abarelix depot in December 2000 and was subsequently granted priority review by the Food and Drug Administration. PRAECIS also has clinical programs in the areas of Alzheimer's Disease and chronic back pain, and has five programs in the research or preclinical development stage.

PRAECIS is located in Waltham, Massachusetts, and employs approximately 125 people. Shaping the future of drug development requires the best and brightest people in the field. We currently have opportunities available in the following areas:

- **Scientists and Research Associates at all levels**
- **Toxicology**
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- **Chemical Development**
- **Analytical Pharmacology**
- **Biochemistry**
- **Cell Biology**
- **Molecular Biology**
- **Manager, GLP Compliance**
- **Manager, GMP Compliance**
- **Program Operations Coordinator**
- **Manager, Market Research – New Products**

By joining the team at PRAECIS, you'll be part of an organization that can make a real difference in the world of medicine. We aim all of our research and development efforts at specific diseases, and we use our proprietary resources and technology in an effort to efficiently and effectively develop drug candidates.

We plan to be a leading force within the pharmaceutical industry. Our employees take pride in the work we do. We foster an environment that's conducive to excellence, and we reward our employees for their achievements.

We believe in direct access to management. We are dedicated to making PRAECIS a company where employees can approach a manager, or any member of management, to make suggestions or ask questions. We work together to create a healthy, pleasant and safe working environment.

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PRAECIS PHARMACEUTICALS INCORPORATED,
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This newly created position will support patent filing and prosecution work; monitor competitors' intellectual property & academic intellectual property; conduct searches & technical analysis for opinions and freedom to operate analyses; and provide scientific/technical support for patent work in inter-parties matters. Requires a Ph.D. or an advanced degree in biological sciences. Patent Agent license and intellectual property experience preferred.

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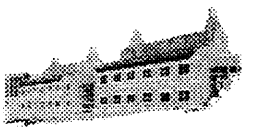
The Jackson Laboratory



The Jackson Laboratory is the world's foremost center for mammalian genetics research and provider of genetically defined mice for biomedical research. The Laboratory's principle location is in Bar Harbor, ME with a second location on the UC Davis campus (JAX West) in Davis, California. In order to better meet the needs of the scientific research community, The Laboratory is expanding its custom breeding and related services. We are looking for a highly motivated individual to fill the following full-time position.

Manager, Research Services – JAX West

This position is responsible for the development, implementation and supervision of a new mouse phenotyping service. The incumbent will have ongoing responsibility for development and implementation of new methods to support the phenotyping service as well as any new, related research services The Laboratory might offer. Further, the incumbent will be responsible for establishing GLP procedures throughout The Laboratory's service organization. Requirements include in-depth knowledge of mouse physiology/biology (PhD or DVM), demonstrated ability to implement research methods in a service setting, strong management skills and the ability to work in team environment. Familiarity with sales, marketing and business development is a plus.
Please refer to job posting # SCI/100/1J

Interested candidates should submit their resume to:
Human Resources, **The Jackson Laboratory**, 600 Main Street, Bar Harbor, ME 04609.
Fax: (207) 288-6106 **Email:** jobs@jax.org.

The Jackson Laboratory is an equal opportunity/affirmative action employer.

For more information about this and other opportunities available, visit us at:

http://www.jax.org

CENTER OF TECHNOLOGY ASSESSMENT IN BADEN-WÜRTTEMBERG - Public Foundation -

The Center of Technology Assessment in Baden-Württemberg, located in Stuttgart, Germany, is searching for a new director of the department "Innovations for Economy, Labor and Employment". The Center of Technology Assessment is a public foundation with the mandate to investigate and assess the consequences of technology and to initiate and coordinate public discourse about the impacts of technological change.

The Center has a Board of Directors, which consists of the Executive Board (Chair and Executive Director) and three other scientific directors. Each of the five directors has responsibility over and is in charge of the functional unit that he or she directs.

More information about the Center is available at the website www.ta-akademie.de

The task of the director "Innovations for Economy, Labor and Employment" is to organize projects and research activities, to develop and maintain the cooperation networks required for the realization of the projects and to respond to public concerns. The research area includes topics such as "structure and dynamics of the knowledge society, regional innovation systems, the future of work relationships, as well as the consequences of the information technologies for social and economic development".

The Center looks for a distinguished person from the business sciences or social sciences with the main emphasis on innovation research, who has already led a comparable research unit or possesses experiences in managing large research projects. Applicants should not only have the necessary scientific qualification (Ph.D.) but also the competence and the skills to communicate the scientific findings to politicians and the public. Furthermore, he she needs to have experiences in interdisciplinary research. A good command of the German language is essential for this position. The appointment is made by the Minister of Science, Research and Art of the State of Baden-Württemberg and is effective for a period of five years. Reappointment is possible. The salary is negotiable. If the applicant meets the necessary prerequisites he or she has the option to be nominated full professor at one of the nine State Universities in Baden-Württemberg. The vacancy is available immediately.

The Center of Technology Assessment encourages female scientists to apply for the position.

Send your letter of application to the following address by August, 15th, 2001:
Minister für Wissenschaft, Forschung und Kunst,
Postfach 10 34 53, 70029 Stuttgart, Germany

Biochemistry Faculty Position Assistant, Associate or Full Professor Brown University Division of Biology and Medicine

The Department of Molecular Biology, Cell Biology and Biochemistry at Brown University announces the opening of a tenure track/tenured faculty position in Biochemistry to be appointed July 1, 2002. The appointment may be made at the level of Assistant, Associate or Full Professor depending on the qualifications of the candidate selected.

Qualifications include a Ph.D. or M.D. degree and a demonstrated track record of excellence in research. The applicant will be expected to pursue an independent, vigorous, externally funded research program that emphasizes biochemical approaches to study contemporary biological problems, and to be an active member of the NIH-funded predoctoral training program in Molecular Biology, Cell Biology and Biochemistry. The applicant will be expected to participate in graduate and undergraduate teaching.

The Search Committee will give full consideration to applications received by October 1, 2001 that include a curriculum vitae, description of research interests, and at least three letters of reference (five for a senior level appointment). Application material should be sent to: **Dr. Kimberly Mowry, Biochemistry Search Committee Chair, c/o Ms. Elizabeth LeFebvre, Department of Molecular Biology, Cell Biology and Biochemistry, Brown University, Box G-J264, Providence, RI 02912.** Letters of reference should be sent under separate cover to the same address.

Brown University is an EEO/AA Employer and invites applications from women and minorities.

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Positions available in different organizations

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Office of Life Sciences - National University of Singapore
Email: olsgans@nus.edu.sg
Leaders in research in the following diseases:
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Vascular Biology / Angiogenesis
Hepatology
Infectious Diseases

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Bioengineering
Experimental Therapeutics
Immunology
Genomics / Proteomics / Structural Biology

Contact Singapore

Singapore Genomics Program
Email: medV6@nus.edu.sg
Research Scientists – High throughput sequencing
Molecular and Cell Biologists
Bioinformatics and Statistics

Biotechnology Processing Centre
Head, Process Development
Purification Group Leader (Process Development)
Group Leader, Cell Culture (Process Development)

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Tel: 617-492-9843
Fax: 617-492-9845

Indiana University School of Medicine Director, Paul and Carole Stark Neurosciences Research Institute

Indiana University School of Medicine seeks candidates for the tenure track position of Director of the newly-formed Paul and Carole Stark Neurosciences Research Institute. Candidates should be recognized leaders in neuroscience research with the vision and administrative skills necessary to shape a multi-disciplinary Center of Excellence. Candidates must hold a M.D., Ph.D., or equivalent degree, have a highly productive research program, and possess outstanding communications skills. Salary will be commensurate with experience and qualifications. Applications will be reviewed as received. Please send curriculum vitae and references to:

T.K. Li, M.D., Chair
Search and Screen Committee
Fesler Hall 318
1120 South Drive
Indianapolis, Indiana 46202-5114

Indiana University is an AA/EOE, M/F/D.

http://www.medicine.iu.edu/home.html

CENTER OF TECHNOLOGY ASSESSMENT IN BADEN-WÜRTTEMBERG
- Public Foundation -

The Center of Technology Assessment in Baden-Württemberg, located in Stuttgart, Germany, is searching for a new director of the department "Conditions for and consequences of life sciences". The Center of Technology Assessment is a public foundation with the mandate to investigate and assess the consequences of technology and to initiate and coordinate public discourse about the impacts of technological change.

The Center has a Board of Directors, which consists of the Executive Board (Chair and Executive Director) and three other scientific directors. Each of the five directors has responsibility over and is in charge of the functional unit that he or she directs.

More information about the Center is available at the website www.ta-akademie.de.

The task of the director "Conditions for and consequences of life sciences" is to organize projects and research activities, to develop and maintain the cooperation networks required for the realization of the projects and to respond to public concerns. The main thematic focus lies on new developments in the fields of food risk and environmental health and their interaction with social behavior, working conditions and life-styles.

The Center looks for a distinguished person from the life sciences who has already led a comparable research unit or possesses experiences in managing large research projects. Applicants should not only have the necessary scientific qualification (Ph.D.) but also the competence and the skills to communicate the scientific findings to politicians and the public. Furthermore, he/she needs to have experiences in interdisciplinary research. A good command of the German language is essential for this position. The appointment is made by the Minister of Science, Research and Art of the State of Baden-Württemberg and is effective for a period of five years. Reappointment is possible. The salary is negotiable. If the applicant meets the necessary prerequisites he or she has the option to be nominated full professor at one of the nine State Universities in Baden-Württemberg. The vacancy is available immediately.

The Center of Technology Assessment encourages female scientists to apply for the position.

Send your letter of application to the following address by August, 15th, 2001:
Minister für Wissenschaft, Forschung und Kunst
Postfach 10 34 53, 70029 Stuttgart, Germany

Vice-President – R&D

PanBio develops, commercialises and markets diagnostic testing kits for infectious diseases as well as develop new generic diagnostic platforms. The Company's R&D program is designed to develop new patentable technology platforms to extend the range and provide licensing opportunities, and to progressively expand the range of infectious disease products.

The Company has a track record of commercialising R&D from both in-house and collaborative projects and has built a strong intellectual property portfolio. The Company is also a founding member of the Australian Cooperative Research Centre for Diagnostic Technologies. The Company successfully raised $17 Million through an IPO and subsequently listed on the Australian Stock Exchange on April 9th, 2001.

PanBio has an energetic team of more than 60 talented people located in our Brisbane and Maryland (USA) facilities. The team delivers outstanding scientific and business results in an environment that fosters personal growth, trust and open sharing of information.

We require a Vice President of R&D to be based in our Brisbane facility to head up our global R&D program. Responsibilities will include directing scientific and professional staff engaged in multi-disciplined research projects and liaison with external collaborative researchers. The position will report directly to the CEO.

The successful applicant will have at least five years experience in a senior scientific research position and preferably have some commercial research experience. A strong understanding of immunoassay principles and multi-platform technologies (eg. ELISA, lateral flow rapid tests and molecular biology – DNA diagnostics) would be highly regarded.

PanBio is committed to teamwork and working within a self-managed and in a cross-functional team environment. The VP of R&D would be expected to nurture this management style.

POSITIONS OPEN

RESEARCH SCIENTIST
Assay Development Diagnostic Kit
Job Number 505-2107

Diazyme Laboratories, a Division of General Atomics, is seeking a Research Scientist to work on assay development for diagnostic kits. The candidate should possess extensive biochemical, bioanalytic, and immunology experience and have hands-on experience in ELISA or microplate-based assay development. Experience in the diagnostic industry and developing ELISA-based diagnostic kits is preferred. Candidate must have Ph.D. in biochemistry/immunology or related fields with typically two to four years of postdoctoral or industry experience in assay development for diagnostic kits.

General Atomics offers competitive salary and benefits as well as a dynamic work environment. For consideration, please reference the specific Job Number and forward your résumé to:

General Atomics
Department 21-777
P.O. Box 85608
San Diego, CA 92186-5608
E-mail: GAJOBS@gat.com
FAX: 858-455-2232
Website: http://www.ga.com
GA or 24-Hour Jobline: 858-455-4545

. Americans With Disabilities Act/Equal Opportunity Employer; handicapped/veterans.

PHYSICAL SCIENTIST, Long Beach, California. National Oceanic and Atmospheric Administration. Announcement Numbers H-NOS-01.22.TMS and HNOS01.23.FRG; apply by July 5, 2001, at **website: http://www.jobs.doc.gov**. Restoration Program Manager and team leader for an interagency state/federal restoration effort funded by the Montrose natural resource damages settlements. Duties include development and evaluation of restoration alternatives and facilitating input of public and stakeholders.

POSITIONS OPEN

ars

GENOMICS SCIENTIST

The U.S. Department of Agriculture, Agricultural Research Service, National Program Staff in Beltsville, Maryland, is seeking a National Program Leader for Animal Production, GS-401-GS-14/15. Salary commensurate with experience (GS-14: $74,697 to $97,108 per year; GS-15: $87,864 to $114,224 per year). *Candidates must be U.S. citizens.* The position is responsible for planning, leading, coordinating, and implementing agricultural research programs relating to germplasm improvement and preservation; animal reproduction including gamete biology, molecular biology, or physiology; and animal biotechnology. This position has specific education and experience requirements and factors that must be addressed. In order to ensure submission of a complete application, applicants must request a copy of the announcement by calling **Telephone: 301-504-1482** or by printing it from the Internet at **website: http://www.ars.usda.gov**. Click on Employment with ARS and then REE Job Opportunities. The vacancy announcement number for this position is ARS-X1E-1374. This announcement closes July 14, 2001. *USDA/ARS is an Equal Opportunity Employer and Provider.*

RESEARCH ASSOCIATE POSITION available at The Molecular Cardiology and Neuromuscular Institute to study cellular and molecular mechanisms of experimental heart failure and neuromuscular diseases. Experience in protein analysis, HPLC, signal transduction, cell culture, fluorescent microscopy, and immunocytochemistry. Experience in mitochondrial research desirable. See *Cardiovasc. Res.* **49:** 17, 2001; *Mol. Cell Biochem.* **210:**47, 2000. *Must be U.S. citizen or permanent resident.* Write or e-mail to: **José Marín, M.D., Director, 75 Raritan Avenue, Highland Park, NJ 08904. E-mail: tmci@att.net.**

POSITIONS OPEN

DIABETES. Two **TENURE-TRACK DIABETES FACULTY POSITIONS** are available in the Center for Diabetes Research at the Indiana University School of Medicine. Faculty in the Center would have primary appointments in an appropriate basic science department and would be expected to develop externally funded basic research programs with relevance to diabetes and its complications. Areas of interest include but are not limited to molecular mechanisms of action of insulin and other relevant hormones, molecular and cellular aspects of metabolic control, proteomic or genomic approaches to diabetes research, obesity, and islet cell biology. Relevant research on model organisms such as flies, worms, or zebrafish is also of interest. Applicants must have a Ph.D., M.D., or equivalent degree. Successful candidates would participate in training medical and graduate students. Applicants at all faculty ranks will be considered, and competitive space and start-up funding are available. Please send applications, including names of three references and proposed research, to: **Dr. Peter J. Roach, Center for Diabetes Research, Van Nuys Medical Science Building, MS405A, 635 Barnhill Drive, Indiana University School of Medicine, Indianapolis, IN 46202. E-mail: diabetes@iupui.edu.** *Indiana University is an Equal Opportunity/Affirmative Action Employer; Minority/Female/Disability.*

The Hypertension Unit at the University of California at San Diego has a **POSTDOCTORAL POSITION** available to investigate mechanisms in autonomic function in catecholamine release and hypertension. Candidates must have experience in chromaffin cell transmitter release and analysis of baroreceptor dysfunction. Send curriculum vitae and names of three references to: **Daniel T. O'Connor, M.D., UCSD and VA San Diego Health Care System MC111-H, 3350 La Jolla Village Drive, San Diego, CA 92161. E-mail: doconnor@ucsd.edu; FAX: 858-642-6331.** *Affirmative Action/Equal Opportunity Employer.*

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Dean, College of Agriculture

Iowa State University invites nominations and applications for dean of the College of Agriculture. We seek an individual who has a clear vision for the college's role in the future of agriculture, food, and natural resources in Iowa and throughout the world. The dean also serves as the director of the university's Agriculture and Home Economics Experiment Station and coordinates the college's extension and outreach program.

A member of the Association of American Universities (AAU), Iowa State University is a comprehensive, land-grant, Carnegie Foundation Research I institution. For more information about Iowa State, visit www.iastate.edu.

The College of Agriculture comprises 17 academic departments, 13 interdisciplinary programs, and 14 centers. The college has a budget in excess of $100 million. See www.ag.iastate.edu.

Candidates must have a doctoral degree; distinguished scholarly accomplishments commensurate with a tenured professorship in one of the university's departments; an ability to communicate a vision for the research, teaching, and extension/outreach missions of a land-grant university internally and externally; a record of leadership in working with diverse constituencies; an understanding of the role of agriculture including modern agricultural research and technologies, natural resources, sustainability, and the interdependence between rural and metropolitan communities in national and international contexts; experience in interdisciplinary work; and a demonstrated commitment to the principles of diversity.

Submit nominations and applications to Stanley R. Johnson, Search Committee Chair, Office of the Provost, Iowa State University, 107 Beardshear Hall, Ames, Iowa 50011 or srjohnso@iastate.edu. Applications should include a curriculum vita and letter of interest. Review of applications will begin August 15, 2001, continuing until the position is filled.

Iowa State University is an EO/AA employer.

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Diagnostic Products Corporation, a global leader in manufacturing and distributing of medical immunodiagnostic test kits and related instrumentation has immediate openings for qualified **Scientists** in the following departments:

Molecular Biology

Exp. in the use of molecular techniques to develop novel protein markers of disease, or in the development of nucleic acid-based diagnostic kits.

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Exp. in the development of commercial reagent kits for automated immunoassay analyzers. Extensive exp. in Immunochemistry is preferred with formal training in Chemistry, Biochemistry, or Clinical Chemistry-related discipline.

Hybridoma

Exp. in Hybridoma technology, immunoassay development, and cellular immunology.

Material Management

Exp. in evaluating raw materials prior to introducing them into components of various immunoassay kits.

All positions require a Ph.D. with preference given to applicants with exp. in specific areas. **Research Associate** positions exist in all R&D areas for individuals holding a BS degree in these or related scientific fields.

DPC offers competitive salaries, excellent benefits, and the opportunity to make a significant contribution to immunodiagnostics. If you are interested please email or mail your resume to: **DIAGNOSTIC PRODUCTS CORPORATION, 5700 W. 96th St., Los Angeles, CA 90045 Attn: HR Recruiter; Email: hrrecruiter@dpconline.com** Website: www.dpcweb.com **NO PHONE CALLS OR FAXES PLEASE.** *EOE M/F/V/D*

NATIONAL CANCER INSTITUTE

OFFICE OF TECHNOLOGY AND INDUSTRIAL RELATIONS

Promoting Innovation in Technology Development for the Future of Cancer Research

http://otir.cancer.gov

The National Cancer Institute (NCI) is committed to supporting the development of new technologies that will speed cancer research. The Office of Technology and Industrial Relations (OTIR) is meeting the challenge with innovative programs that target enabling technologies for cancer research and new strategies for promoting high risk, high payoff technology breakthroughs. We are currently seeking two qualified professionals to help us manage our investments in technology innovation:

Senior Technology Programs Manager

GS-601-15, (NCI-01-2922).

The successful applicant will play a critical role in the technical management of high-risk technology innovation programs directed by the OTIR. These programs currently include NCI's emerging collaboration with the National Aeronautics and Space Administration (NASA) in Biomolecular Sensors and the Unconventional Innovations Program (http://otir.cancer.gov/tech/uip).

Technology Programs Manager

GS-601-13/14, (NCI-01-2921).

The successful applicant will play a critical role in coordinating ongoing trans-NCI technology development programs, such as the Innovative Molecular Analysis Technologies Program (http://otir.cancer.gov/tech/imat).

The successful applicants for both positions will be enthusiastic individuals with advanced scientific or technical training, broad technology interests, innovative ideas, excellent scientific judgment and outstanding oral and written communication skills. The Senior Technology Programs Manager must also have technology or scientific program management experience.

Joining the OTIR team will provide an excellent opportunity to gain expertise related to areas of technology that span the NCI's mission and enable you to work closely with existing NCI technology programs. Additional responsibilities will include assisting researchers in identifying opportunities for technology development investment and collaboration, assisting in the identification of new technologies of potential interest for cancer research, and assisting in the development and implementation of new trans-NCI technology programs. For information on mandatory application procedures see (http://careerhere.nih.gov.), referencing the position number cited above. NIH is an Equal Opportunity Employer.

NATIONAL® CANCER INSTITUTE

POSITION IN PHYSICAL OR CHEMICAL OCEANOGRAPHY
UNIVERSITY OF VICTORIA
School of Earth and Ocean Sciences

Applications are invited for a tenure-track **ASSISTANT PROFESSOR** position in the School of Earth and Ocean Sciences (SEOS) in the area of physical or chemical oceanography. Those with expertise complementary to existing strengths in ocean mixing, dynamics, and climate are particularly encouraged to apply. SEOS has close interactions with nearby federal government laboratories of the Institute of Ocean Sciences and the Canadian Centre for Climate Modelling and Analysis. Qualifications include the completion of a Ph.D. and demonstrated strong research and teaching potential. Duties will include teaching at undergraduate and graduate levels. Letters of application clearly outlining the candidate's expertise, teaching experience, and research interests; curriculum vitae; and names, addresses, and FAX and e-mail addresses for references should be sent by September 15, 2001, to: **Dr. Chris Barnes, Director, School of Earth and Ocean Sciences, University of Victoria, P.O. Box 3055, Victoria, BC V8W 3P6 Canada. FAX: 250-721-6200**. The University has excellent policies which support faculty with family obligations including paid maternity/parental leave and a generous pension plan. Visit our **website: http://www.uvic.ca/seos**.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. However, if suitable Canadian applicants cannot be found, other individuals applying to this advertisement will be considered. The University of Victoria is an Equity Employer and encourages applications from women, aboriginal peoples, visible minorities, and persons with disabilities.

ASSISTANT/ASSOCIATE PROFESSOR CORN BREEDING AND GENETICS
University of Illinois

Applications are invited for a nine-month, tenure-track faculty position available January 1, 2002, in the Department of Crop Sciences with emphasis on research and teaching that integrates classical and molecular genetics in an applied breeding and genetics program. Successful applicant is expected to develop an internationally recognized, externally funded research program that integrates and demonstrates the value of contemporary genetic techniques and emerging molecular technologies to enhance traditional corn breeding. Ph.D. in plant breeding or a related discipline required. Complete position announcement and application information available at **website: http://www.cropsci.uiuc.edu**; first link to general information, then to job opportunities. Inquiries to: **Dr. F. L. Kolb, Search Committee Chair, Department of Crop Sciences, 1102 South Goodwin Avenue, Urbana, IL 61801. Telephone: 217-244-6148; e-mail: f-kolb@uiuc.edu**.

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

ASSISTANT PROFESSOR, RENAL DIVISION
Brigham and Women's Hospital (BWH) and Harvard Medical School

The Renal Division, Department of Medicine, BWH, is seeking a highly qualified Physician–Scientist for an **ASSISTANT PROFESSOR** position. The successful candidate should have an M.D. degree, several years of postdoctoral research experience, be Board certified in nephrology, and preferably have independent research funding. Preference will be given to individuals with experience in molecular biology with particular emphasis in ion transporters and human diseases. Active participation in clinical nephrology at BWH is required.

Interested candidates should send curriculum vitae, a short statement of research interests and plans, and the names of four references to: **C. B. Carpenter, M.D., Renal Division, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115 U.S.A.** *Brigham and Women's Hospital is an Equal Opportunity/Affirmative Action Employer. Applications from women and minorities strongly encouraged.*

FACULTY POSITION IN BIOINFORMATICS AND INFORMATICS
School of Computational Sciences
George Mason University

The School of Computational Sciences (SCS) at George Mason University is seeking candidates for tenure-track and tenured faculty positions in the Molecular Biosciences and Informatics (MBI) group.

Successful candidates will have a Doctoral degree, relevant postdoctoral experience, and strong research interests in bioinformatic or computational approaches to the molecular biosciences. Areas of interest include but are not limited to complex modeling, structural genomics, molecular biosciences, forensic science, and molecular evolution. Additionally, a strong commitment to contributing to quality M.S. and Ph.D. programs in bioinformatics and computational biology is expected. Applicants at all faculty levels will be considered. Senior-level applicants should have demonstrated success in obtaining research support, for independent research projects, and evidence of excellence in academic teaching and mentoring.

SCS offers an interdisciplinary Ph.D. in computational sciences and informatics with a concentration in bioinformatics and an innovative professional M.S. program with concentrations in bioinformatics, biotechnology, and forensic biosciences. Excellent molecular biology, analytical instrumentation, and computational facilities are available in the MBI facilities located in two new research and teaching buildings on the GMU Prince William campus located in northern Virginia near the greater Washington, D.C., metropolitan area. For more information about these positions, please contact: **Dr. Curtis Jamison; e-mail: cjamison@gmu.edu**. General information on SCS and MBI is available at our **websites: http://www.scs.gmu.edu** or **http://www.scs-pw.gmu.edu**. Review of applications will begin immediately and will continue until the positions are filled. Please send curriculum vitae, a statement of research interests, and names of three references either in electronic (preferred) form to **e-mail: mflanner@gmu.edu** or in hard copy to: **Dr. Curtis Jamison, Chair, Search Committee for SCS Faculty, School of Computational Sciences MS 4E3, George Mason University, 10900 University Boulevard, Manassas, VA 20110**. *Affirmative Action/Equal Employment Opportunity.*

TENURE-TRACK POSITION ANGIOGENESIS AND ENDOTHELIAL CELL BIOLOGY

The Cardiovascular Research Center at the University of Virginia has a tradition of excellence in cardiovascular research. Our prior interdepartmental research foci have included vascular mechanics, contractile protein function, and signaling in vascular smooth muscle. We are in the process of assembling a group of Investigators who will extend these areas of excellence to include an expanded program that integrates the themes of cell signaling and angiogenesis or vascular development. A special area of emphasis will be on the ways in which interactions between smooth muscle, endothelial cells, and leukocytes coordinate to determine the structure and function of the vasculature. We wish to announce the availability of **TENURE-TRACK POSITIONS** for Investigators interested in these areas of investigation. We seek individuals who can develop an outstanding research program, both on an individual basis and as part of an interdisciplinary team. Applicants should have several years of experience and a productive research program in endothelial cell biology and/or angiogenesis. Particular preference will be given to Investigators with expertise in signaling and/or gene regulation in endothelial cells, especially in relation to angiogenic processes. Appointment may be in any of several basic science departments in the Medical School consistent with prior training and interests of the applicant. Applicants should send letters of inquiry and résumé and one-page statement of research goals to: **Dr. Brian R. Duling, Director, Cardiovascular Research Center, P.O. Box 801394, Charlottesville, VA 22908**. *The University of Virginia is an Equal Opportunity Employer.*

ASSISTANT/ASSOCIATE/ FULL PROFESSORS OF PLANT PATHOLOGY

Applications are invited for two faculty positions and The Harry E. Wheeler Chair in plant mycology. The successful candidates are expected to develop and sustain nationally recognized research programs and also to participate in the teaching program of the Department. One faculty position will require a focus on plant viruses or plant-virus interactions, and the other will encompass any innovative research pertinent to plant pathology. Research areas of interest to the Department include but are not limited to proteomics and/or functional genomics; gene discovery by, for example, gene silencing or map-based cloning; signal transduction; and molecular interactions. Faculty position applicants will be considered simultaneously as applicants for the Wheeler Chair. Clearly, candidates for the Chair will be required to demonstrate relevant experience and be conducting research germane to plant mycology. Funds available from this endowed Chair are anticipated to be employed, in major part, to help support the successful candidate's research program with a lesser portion to be applied as a salary supplement. A Ph.D. in a relevant discipline is required of all applicants. Appointment at the Associate or Full Professor level will require evidence of appropriate accomplishments. Applicants should send an outline of proposed research; curriculum vitae; transcripts; sample publications; any other indicators of relevant professional experience; and the names, addresses (including e-mail), and telephone numbers of at least three professional references (no letters at this time) to: **Dr. David A. Smith, Department of Plant Pathology, S–305 Agricultural Science Building North, University of Kentucky, Lexington, KY 40546-0091. Telephone: 859-257-3901; FAX: 859-323-1961; e-mail: GOTOBUTTON BM_1_dasmith@ca.uky.edu.** Applications will be accepted until September 14, 2001, or until suitably qualified candidates are found. Electronically transmitted applications will not be accepted. *The University of Kentucky is an Equal Opportunity Employer.*

BIOLOGY: The Biology Department at Shippensburg University invites applications for several one-year temporary positions. Teaching responsibilities (12 hours) will be selected from among the following courses based upon the applicant's educational background and teaching experience: Basic Biology, Human Biology, Biology: a Laboratory Approach, Problems of the Environment; majors courses: Principles of Biology I and II, Animal Physiology, Vertebrate Zoology (course descriptions available at **website: http://info.ship.edu/catalog/ug97/**). The successful candidate must have completed an earned Doctorate in biology and have instructed at the college level. A demonstration of teaching effectiveness will be required as part of the interview process. Applicants should send curriculum vitae; copies of undergraduate and graduate transcripts; a statement describing previous teaching experience and course instruction capability; and the names, addresses and telephone numbers of three references to: **Search Committee Chair, Biology Department, 1871 Old Main Drive, Shippensburg University, Shippensburg, PA 17257-2299**. Initial review of materials will begin on June 22, 2001, and will continue until all positions are filled. *Shippensburg University is an Equal Opportunity Employer.*

Position vacancy announcement: Florida A&M University, College of Pharmacy, is seeking **RESEARCH ASSISTANTS/ASSOCIATES** with Ph.D. degrees in the area of synthetic medicinal chemistry focusing on heterocyclic compounds. Experience on drug design will be an advantage. Submit letter of interest and curriculum vitae to:

Dr. K. Ken Redda
Florida A&M University
College of Pharmacy
Tallahassee, FL 32307
Telephone: 850-599-3910
E-mail: Ken.Redda@famu.edu

Senior and Junior Staff Scientist Positions in Toxicologic Pathology
National Institute of Environmental Health Sciences, National Institutes of Health
Research Triangle Park, North Carolina

The Laboratory of Experimental Pathology, Environmental Toxicology Program, Division of Intramural Research, National Institute of Environmental Health Sciences, National Institutes of Health, in Research Triangle Park, North Carolina, is seeking highly motivated senior and junior Toxicologic Pathologists experienced in rodent toxicology and carcinogenicity studies to work within the National Toxicology Program (NTP). The NTP conducts 90-day and 2-year rodent toxicology/carcinogenesis studies, studies using genetically modified mice involving various agents, and studies exploring mechanisms of toxicity/carcinogenicity. The successful candidates will be involved in many phases of these studies. Primary involvement will be in the management and oversight of the pathology peer review (evaluation), and interpretation and reporting of the data. The Laboratory of Experimental Pathology is a leader in Toxicological Pathology, publishing books on both rat and mouse pathology as well as numerous articles in scientific literature. The candidates will also be expected to identify and pursue special projects to advance the understanding of various biological endpoints.

- Minimum qualifications for senior positions include DVM degree and ACVP certification or equivalent (e.g., DVM and ECVP certification; MD and anatomic pathology boards).
- Minimum requirements for junior positions include a DVM degree, completion of a pathology residency, and ACVP eligibility or equivalent.

For both senior and junior positions, a PhD degree and demonstrated knowledge and experience in mechanisms of toxicity and carcinogenicity as well as knowledge and experience with alternative models (e.g. transgenic rodents) are desirable. The salary is commensurate with experience; full Federal employee benefits apply.

Information about the NIEHS National Toxicology Program can be obtained by accessing their home page on the internet at: http://ntp-server.niehs.nih.gov. For additional information about this position, contact Dr. James R. Hailey at 919-541-0294. Applications from women and minority groups are particularly welcome. Interested parties should submit a curriculum vitae, bibliography and brief statement of relevant interests and experience. If NIEHS and the applicant reach serious consideration for a position, the applicant shall furnish the names of three individuals from whom letters of recommendation can be requested.

Applications must be sent to: Ms. Celestine Edwards (HNV 01-10); NIEHS Human Resource Management Branch, P.O. Box 12233, Maildrop EC-11, Research Triangle Park, NC 27709, 919-316-4602 e-mail: edwards3@niehs.nih.gov Deadlines for receipt of applications: **July 13, 2001 and October 5 ,2001.** Applications received by **July 13, 2001** will be given top priority. *Applications received between July 13 and October 5 will be given consideration for remaining open positions.*

NIEHS/NIH is an Equal Opportunity Employer

Head of Palaeontology

c £52,000, London

We are seeking a talented palaeontologist who will thrive in a challenging scientific leadership role. He/She will have an international reputation and will use their skills to develop palaeontology as a discipline and integrate its work with other life and earth sciences.

The Task

The Head of Department sets the priorities for their staff, developing them to ensure optimum use of the collection, while further enhancing the high profile and quality of research and consultancy. Through teamwork, the Head pursues their own high-level research. They also ensure that the Department achieves its challenging targets and that best use is made of physical and financial resources. The Head, with other senior managers, also plays a key role in formulating and achieving medium and long-term plans for the Museum as a whole.

The Department

It is the leading palaeontology centre in the UK, and has international stature. It maintains several significant research programmes including those in micro-palaeontology, human origins, invertebrate and vertebrate phylogeny, global change and stratigraphic correlation.

The Museum

The Museum is an international centre for systematics research and collections and makes a major contribution to science and to tackling issues of contemporary concern. Through exhibitions and education, it aims to increase the public's understanding and enjoyment of the natural world.

Further Information

The appointment is permanent and the starting salary will be not less than £52,000 with a non-contributory pension scheme. More may be available for exceptional candidates.

An information pack can be obtained by sending a SAE to Hannah Neale, Department of Human Resources, The Natural History Museum, Cromwell Road, London, SW7 5BD, UK.

Applications, by CV and accompanying letter, including the names of three referees, should also be sent to Hannah Neale in the HR Department and must be received by 18 July 2001.

Any further enquiries can be addressed to Professor Paul Henderson, Director of Science on + 44 (0)20 7942 5299 or email P.Henderson@nhm.ac.uk

THE NATURAL HISTORY MUSEUM

The Natural History Museum is working towards Equal Opportunities.

ASSISTANT/ASSOCIATE PROFESSOR
Division of Neurosciences
Beckman Research Institute of the City of Hope

The Division of Neurosciences, Beckman Research Institute of the City of Hope, invites applications for a faculty position at the Assistant or Associate Professor level. We seek candidates with research interests in the areas of stem cells and/or vertebrate neural development. This new position will complement the existing divisional focus on developmental neurobiology. Compensation (institutionally funded) and start-up funds will be highly competitive.

The Beckman Research Institute provides an environment that encourages interdisiplinary collaborative interactions with institutional programs in molecular biology and gene regulation, immunology, diabetes and endocrinology, and hematology and bone marrow transplantation. In addition, the Institute offers an unusually rich set of core resources in transgenic mouse production, gene microarray production and interpretation, oligonucleotide and peptide synthesis, DNA and peptide sequencing, and mass spectrometry/NMR. The Institution hosts an accredited graduate program in biological sciences. Further information on the Beckman Research Institute and on the Division of Neurosciences is available at **website: http://bricoh.coh.org/docs/research_report/**.

Candidates should have a Ph.D. or M.D. degree, postdoctoral experience, and the potential to establish or to have established an independent research program. We will begin evaluating applications during August 2001 and will consider them until the position is filled. Applicants should submit curriculum vitae; a statement of research interests and plans; and the names, addresses, and telephone numbers of at least three references to: **Michael E. Barish, Ph.D., Professor and Chair, Division of Neuroscience, Beckman Research Institute of the City of Hope, 1500 East Duarte Road, Duarte, CA 91010**. *The City of Hope is an Equal Opportunity/Affirmative Action Employer. Women, minorities, veterans, and disabled persons are encouraged to apply.*

ASSISTANT/ASSOCIATE PROFESSOR
REGULAR TITLE SERIES
University of Kentucky

The Division of Molecular Medicine/Graduate Center for Nutritional Sciences is seeking applications from Scientists with Ph.D./M.D. or equivalent degrees for the position. Of particular interest are candidates with research interests in diabetes/obesity/lipoprotein metabolism/vascular biology. However, the excellence of the candidates is of more importance than the particular areas of research. Candidates will join an established group of faculty focusing mostly on lipoprotein metabolism/vascular biology. Extensive, secure, state-funded salary base available. State-of-the-art research facilities in newly constructed building available. The University of Kentucky is in a dynamic phase of expansion of its scientific infrastructure. Applicants should submit curriculum vitae, a brief statement of research plans, and names of references to: **F. C. de Beer, M.D., Molecular Medicine/Nutritional Sciences, University of Kentucky, 800 Rose Street, Room MN520, Lexington, KY 40536-0298**.

FACULTY POSITION
COLUMBIA UNIVERSITY

The Department of Biochemistry and Molecular Biophysics and the Center for Molecular Cardiology jointly invite applications for a tenure-track **ASSISTANT PROFESSOR** in the areas of cellular differentiation, signal transduction, gene regulation, and structural biology as related to muscle. Applicants should send their curricula vitae, three letters of reference, and a brief description of their work and future direction to the Search Committee co-chairs: **Andrew R. Marks, M.D.** and **Max Gottesman, M.D., Ph.D., Center for Molecular Cardiology, Columbia University, Mail Code 65, 630 West 168th Street, New York, NY 10032**. *Columbia University is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

FACULTY POSITIONS
Molecular Genetics, Biochemistry, and Microbiology
Universty of Cincinnati
College of Medicine

The Department of Molecular Genetics, Biochemistry, and Microbiology has well-established research programs and seeks to attract faculty at the tenure-track **ASSISTANT PROFESSOR** level with research that complements the following areas: (1) genetics, biochemistry, and molecular biology of signal transduction and/or transcription; (2) X-ray crystallography/structural biology; and (3) microbiology, pathogenesis, immunology, and virology.

The 26 full-time faculty maintain highly visible research programs in multiple areas including viral and microbial pathogenesis, molecular and cellular immunology, differentiation, developmental and cancer biology, human genetics, structural biology, and membrane transport. Our graduate program includes 44 graduate students and an equal number of Postdoctoral Fellows training in the Department. Our structural biology program has a world-class NMR facility with five instruments, including one of 800 MHz. The College is completing a state-of-the-art BL3 containment facility for work with pathogens. We maintain core facilities for production of transgenic and knockout mice, DNA synthesis and sequencing, gene microarray analysis, proteomics, and informatics. These provide a breadth of research opportunities unparalleled at most research institutions.

For further information, please see **website: http://ucmg65.med.uc.edu/**. Applicants should submit curriculum vitae, brief description of research, and the names of three qualified references to: **Jerry B. Lingrel, Ph.D., Professor and Chair, Department of Molecular Genetics, Biochemistry, and Microbiology, P.O. Box 670524, Cincinnati, OH 45267-0524**.

Affirmative Action/Equal Opportunity Employer.

PH.D. RESEARCHER POSITION

ANESTHESIOLOGY RESEARCH. The University of California, Irvine, will be recruiting during the months of April 20, 2001 to July 5, 2001, for an **ASSISTANT PROFESSOR**, tenure track. Requirements include Ph.D. or M.D. with significant research training or experience. Molecular biology experience is an asset. Opportunities for experimental and clinical research and collaborations with the basic sciences, including biomedical engineering. Present departmental research areas include gas kinetics in anesthesia during nonsteady state (NIH-funded program, HL-42637, systems to cellular physiology) and the study of mechanisms of anesthesia and memory (includes PET and MRI imaging technologies). Duties will include teaching of residents and medical students. Apply to: **Peter H. Breen, M.D., FRCPC, Vice Chair and Director of Academic Affairs, Search Committee Chair, Department of Anesthesiology, UCI Medical Center, 101 The City Drive South, Orange, CA 92868. FAX: 714-456-7702**. *UCI is an Equal Opportunity Employer committed to excellence through diversity.*

BIOLOGY

The Thomas More College of Liberal Arts seeks Ph.D. to teach general biology and general chemistry, to teach in and to help develop the major program in biology, and to participate in the life of a unique liberal arts college. Salary is competitive. Wide range of benefits. Send credentials to: **Dr. Peter V. Sampo, President, Thomas More College of Liberal Arts, 6 Manchester Street, Merrimack, NH 03054. E-mail: thomaemorae@earthlink.com.**

POSITIONS OPEN

DIRECTOR, Texas A&M University transgenic facility. The Department of Pathobiology in collaboration with the Center for Animal Biotechnology and Genomics and the NIEHS Center for Environmental and Rural Health invites applications for a **FACULTY** or **RESEARCH SCIENTIST** position. This individual would have strong expertise in molecular construct design and production and supervise a transgenic mouse core facility to produce overexpressed and gene-ablated mice for campus Investigators. He/she would provide oversight for services to isolate and characterize genes of interest, design and prepare pronuclear and homologous recombination constructs, culture and genetically manipulate embryonic stem (ES) cells, karyotype targeted ES cell lines, and perform PCR/Southern analysis for pronuclear and ES cell blastocyst microinjection in mice. A Ph.D., D.V.M./Ph.D., or M.D./Ph.D. and postdoctoral training is expected of a tenure-track individual, while an M.S. or Ph.D. degree with suitable experience will be considered for a research track position. A detailed position description is posted on the department **website: http://vtpb-www.cvm.tamu.edu/**. A letter of application with curriculum vitae, statement of research and service goals, and contact information for three references should be sent to: **Transgenic Director Search Committee, Department of Pathobiology, Texas Veterinary Medical Center, Texas A&M University, College Station, TX 77843-4467**. Applications will be received until the position is filled. *Texas A&M University is an Equal Opportunity Employer committed to excellence through diversity.*

NEUROSCIENTIST/NEUROLOGIST

The Department of Neurology, Northwestern University Medical School and Northwestern Memorial Hospital, is seeking an M.D. or M.D./Ph.D. full-time academic Neurologist with strong cellular and molecular research interests. The Department is committed to excellence in both clinical and basic sciences, and substantial resources have been given for the expansion of the Department's research and clinical programs. Examples of areas of interest in the Department include stem cell biology, the biology of channels and receptors, sleep and circadian rhythms, molecular genetics of neurologic disease, neuro-oncology, and stroke. Research space and substantial support are available for development and expansion of basic research programs in each of these areas as well as other related ones. Salary will be negotiable depending upon rank and experience. Please refer to Academic Search number P-256-01.

Interested candidates should send their curricula vitae to: **John Kessler, M.D., Chairman, Department of Neurology, Northwestern University Medical School, 710 North Lake Shore Drive, Chicago, IL 60611. Telephone: 312-503-2775; e-mail: jakessler@northwestern.edu**.

In order to ensure full consideration, applications must be received by September 1, 2001. *Northwestern University is an Equal Opportunity Employer and encourages women and minorities to apply.*

ASSISTANT OR ASSOCIATE PROFESSOR
TENURE TRACK

The Emory University Department of Physiology invites applications for a **TENURE-TRACK FACULTY POSITION** in the area of regulation of membrane proteins and transport. Applicants with interests in membrane protein genetics, gene regulation, cell signaling pathways, and trafficking of membrane proteins are encouraged to apply. A Ph.D. and/or M.D. degree, several years of postdoctoral training, and a publication record of strong research accomplishments are required. Application review will begin July 1, 2001, and continue until the position is filled. Please send letter of application, curriculum vitae, description of research program and interests, and the names of three references to: **Dr. Robert B. Gunn, Chairman, Department of Physiology, Emory University School of Medicine, 1648 Pierce Drive, Atlanta, GA 30322-3110**. *Affirmative Action/Equal Opportunity Employer.*

FELLOWSHIPS

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

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

Ten Fellows will be selected in 2002. An award of $50,000 will be provided as a salary stipend for the fellow during the period of training (2 years) and will be administered by the sponsoring U.S. institution. The sponsoring institution is required to supplement the salary stipend with at least $5,000 a year and to provide full medical benefits for the fellow. Following the two year fellowship, the Program will issue an additional $35,000 award to the sponsoring institution to purchase equipment and supplies for the fellow to establish a laboratory in his or her home country.

Applicants must have held a Ph.D. and/or M.D. degree, or equivalent, for no more than five years as of July 1, 2002. Applicants may not have had previous post-doctoral training outside of Latin America nor may they have begun a post - doctoral position in the US prior to October 1, 2001. Applicants are not required to have a commitment of a position and laboratory space after the fellowship. However, applicants must submit a written statement of intent to return to Latin America. Fellows must accept a position and have confirmed laboratory space in Latin America by the end of the fellowship period in order to obtain the $35,000 portion of the award.

Fellows will be selected on the basis of their promise as outstanding investigators, as well as the scientific merit of their research proposal, their record of training and how well their interests coincide with the laboratory of their sponsor in the United States. If potential applicants need assistance with the identification of an appropriate sponsoring laboratory in the United States, they may contact the Program Office before August 1, 2001. The program will accept applications from Mexico, Central and South America. Applications may be obtained from the Regional Committee contact listed here for each country or from our website at **www.pewlatinfellows.com**

The application deadline is October 1, 2001. Winners will be notified in April 2002 and the fellowship should begin no later than August 2002.

APPLICATION DEADLINE IS OCTOBER 1, 2001

ARGENTINA
Ana Belen Elgoyhen, Chair
Instituto de Investigaciones en Ingenieria
Genetica y Biologia Molecular
Phone: (5411)(4) 783-2871
Fax: (5411)(4) 786-8578
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BRASIL
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CHILE
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Instituto de Ciencias Biomedicas
Facultad de Medicina
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Mario Zurita, Chair
Instituto de Biotecnología. UNAM
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All Other Countries
Silvia Montano de Jiménez
The Pew Latin American Fellows Program
3333 California Street, Suite 410
San Francisco, CA 94118
Tel: (415) 476-5116 Fax: (415) 476-4113
E--mail: montano@itsa.ucsf.edu

GLOBAL OPPORTUNITIES

A PIRAMAL ENTERPRISE

Pharmaceutical R&D Opportunities in India

Nicholas Piramal India Ltd. (NPIL) is a Rs. 1200 crore value-based, world-class healthcare company that has grown to become India's No. 2 by acquiring the Indian operations of Nicholas Labs, Roche, Boehringer Mannheim & Rhone Poulenc, as well as through partnerships with leading global companies. We have recently acquired a Research Centre of 29 years international standing from Hoechst Marion Roussel Ltd. Located in Mumbai, and now rechristened Quest Institute of Life Sciences (QILS), the centre is staffed by top-notch R&D professionals in an international work culture, with international standard research capabilities and infrastructure. We are engaged in major R&D initiatives in New Drug Discovery, Genomics, Herbal Drugs, Chemical Process Development, Formulation Development and Clinical Research.

To strengthen the efforts in New Drug Discovery Research and Herbal Drug Research at QILS, we are looking for committed researchers to take up challenging responsibilities in the following areas of expertise / specialisation:

• Chemistry - Synthetic & Natural Products
• Molecular Biology • Microbiology
• Chemotherapy • Pharmacology
• Spectroscopy - NMR & Mass • Patents
• Pharmacokinetics & Drug Metabolism

E-mail your CVs to wtan@nicholaspiramal.co.in

Visit www.nicholaspiramal.com for details

Canada's blood system requires an

Associate Scientist (Molecular Immunology)

Canadian Blood Services is looking for an individual to join our team of experienced, motivated professionals. We offer an environment of challenge and stimulation with a thorough emphasis on quality. Most significantly, you will have the opportunity to help save lives and contribute to Canada's health system.

Working in collaboration with McMaster University in Hamilton, you will be a member of a joint Platelet Immunology Research Group comprised of scientists and physicians studying auto-immune platelet disorders, immune thrombocytopenias, and transfusion medicine issues related to patient care.

As the successful candidate, you have a PhD in a relevant area, related post-doctoral training, and a proven track record of research in Molecular Immunology and/or Protein Chemistry.

As a regular, full-time employee of Canadian Blood Services, you will earn a competitive salary and full benefits package while holding an academic appointment, including research infrastructure support, at McMaster University.

If you are ready for a rewarding challenge, forward your résumé, quoting competition #00-096, no later than July 6, 2001, to: **Head Office, Human Resources, Canadian Blood Services, 1800 Alta Vista Drive, Ottawa, Ontario K1G 4J5. Fax (613) 739-2290. E-mail: Human.Resources@bloodservices.ca**

Candidates must be legally entitled to work in Canada.

Canadian Blood Services is a not-for-profit charitable organization mandated to deliver a safe, secure, cost-effective, affordable and accessible supply of quality blood, blood products and their alternatives.

While we thank all applicants for their interest, only those selected for an interview will be contacted.

CANADIAN BLOOD SERVICES
Blood. It's in you to give.
www.bloodservices.ca

ASSISTANT PROFESSOR OF PUBLIC HEALTH

The Division of Environmental Health Sciences at the Mailman School of Public Health, Columbia University, seeks to recruit two to three new junior faculty members. The Division has considerable research expertise in chemical carcinogenesis, molecular epidemiology, metal toxicology, community-based research, and air quality and respiratory disorders. It is home to an NIEHS P30 Center, a Children's Environmental Health Center, and a Superfund Basic Research Program. The Division's strong teaching program offers M.P.H., Dr. P.H., and Ph.D. degrees and attracts outstanding applicants. While candidates in all areas of EHS will be considered, special consideration will be given to those with active laboratory-based research programs in the following areas: asthma, neurotoxicology/neurodegenarative disease, metal biochemistry, and exposure assessment. Candidates must have a Doctorate with demonstrated research experience. Applicants should send a letter describing research and teaching interests, full curriculum vitae, and the names of three references to:**Dr. Joseph H. Graziano, Division of Environmental Health Sciences, Mailman School of Public Health, 60 Haven Avenue, B-106, New York, NY 10032.**

Columbia University is an Equal Opportunity/Affirmative Action Employer and welcomes applications from qualified women and minority candidates.

ASSISTANT/ASSOCIATE PROFESSOR OF MEDICINE, RENAL DIVISION
Washington University School of Medicine

The Renal Division at Washington University School of Medicine seeks to recruit a Scientist (M.D., Ph.D., or M.D./Ph.D.) to a tenure-track or tenured position. Candidate's science should relate directly/indirectly to renal developmental biology. Tenure-track (Assistant Professor) candidate must be well trained in/committed to biomedical research and able to function independently as demonstrated by publications/funding. Tenured appointment (Associate Professor) will require that the candidate's science be recognized/highly regarded at national/international levels. We will provide an outstanding start-up package and protected time. For M.D. candidates, clinical training in nephrology is not essential. Send curriculum vitae and a brief summary of research plans to: **Marc R. Hammerman, M.D., Director, Renal Division, Washington University School of Medicine, Box 8126, 660 South Euclid Avenue, St. Louis, MO 63110.**

Washington University is an Equal Opportunity Employer/Affirmative Action Employer; Minorities/Females/Disabled/Veterans.

RESEARCH DIRECTOR (PH.D.)

Tall Timbers Research, Inc., founded in 1957, is a nonprofit scientific conservation and educational organization known for studies in fire ecology and long-term research on wildlife (particularly bobwhite quail) habitat, resource management, forest stewardship, and ecology of natural communities. Candidates must have research experience stressing wildlife habitat/resource management, especially in fire-mediated systems, with an interest in natural history. Research Director coordinates science division activities integrated with other institutional components (including conservation, development, and communications) and is responsible for personal research program and direction of staff research. Send curriculum vitae and arrange for four letters of reference to be sent by July 20, 2001, to:

Lane Green, Executive Director
Tall Timbers Research Station
13093 Henry Beadel Drive
Tallahassee, FL 32312-0918
Telephone: 850-893-4153, Extension 239
FAX: 850-668-7781
E-mail: lane@ttrs.org

Deadline: July 20, 2001.

POSITIONS OPEN

THREE TENURE-TRACK POSITIONS
Mammalian Developmental Biology

The University of Illinois at Urbana–Champaign invites applications for three tenure-track faculty positions in mammalian developmental biology as part of the campus interdisciplinary initiative in postgenomics. This search is part of a multiyear program that includes the construction of the Postgenomics Institute, poised to utilize genomic information. Of particular interest are the areas of:

Embryonic and Adult Stem Cell Biology
Animal Cloning and Transgenics
Sexual Determination and Differentiation

These positions are in the Departments of Animal Sciences, Molecular and Integrative Physiology, and Veterinary Biosciences at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Applicants should have a Doctoral degree, postdoctoral experience, and evidence of outstanding research potential (demonstrated research for Associate Professor). It is expected that the successful candidates will establish an internationally recognized research program to direct both M.S. and Ph.D. students, to advise and interact with undergraduate or professional students, to contribute to the teaching needs of the Departments in appropriate areas, to compete effectively for private and public research funds, and to participate in the public service missions of the Departments. Successful candidates will be provided with excellent laboratory facilities, substantial start-up funds, and a salary commensurate with experience. Information about the position and each department can be found at **website: http://www.ansci.uiuc.edu/jobs/mamdev.html**. Applicants should submit their application to: **Dr. Robert Easter, Department of Animal Sciences, University of Illinois at Urbana–Champaign, 1207 West Gregory Drive, Urbana, IL 61801.** Questions can be directed to: **Dr. David Miller, Chair of the Search Committee; Telephone: 217-333-3408; e-mail: d-mille@uiuc.edu**. An application must include curriculum vitae with a complete list of publications, a concise summary of research interests and future plans, and names of four persons willing to provide letters of recommendation. This position is available November 1, 2001. To ensure full consideration, applications should be received by September 1, 2001. *The University of Illinois at Urbana–Champaign is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION
The University of Texas
Southwestern Medical Center

Postdoctoral positions are available to study regulation of ion channels using molecular biology, electrophysiology, and transgenic animals. Recent publications from the laboratory include *Nature* **391**:803–806, 1998; *PNAS* **96**:5820–5825, 1999; *JBC* **275**: 10182–10189, 2000. Candidates must have Ph.D. and/or M.D. and be highly motivated. Background in molecular biology, transgenic animals, and/or electrophysiology is required. Send curriculum vitae and names of references to: **Chou-Long Huang, M.D., Ph.D., Department of Medicine, UT Southwestern, 5323 Harry Hines Boulevard, Dallas, TX 75390-8856. Telephone: 214-648-8627; FAX: 214-648-2071; E-mail: Chou-Long.Huang@utsouthwestern.edu**

UT Southwestern is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSOR
Environmental Toxicology/Molecular Epidemiology
Institute for Environmental Studies

Required qualifications: Ph.D. in environmental toxicology or related field such as epidemiology, ecotoxicology, biostatistics, and public health with an emphasis on molecular toxicological/epidemiological studies on human populations and/or ecological model systems; must qualify for appointment to the associate graduate faculty. Additional qualification desired: previous university teaching. This is a tenure-track, academic-year (nine-month) appointment. Focus will be on quantitative and information-based decision making for environmental toxicology and epidemiology. Responsibilities: Teach graduate courses in environmental toxicology; organize and direct a graduate research laboratory in environmental toxicology; initiate a program of personal scholarship; participate in multidisciplinary team projects; procure extramural funding for a research program.

The Search Committee will begin reviewing applications July 13, 2001, and will continue until an appointment is made. A complete application consists of a letter of interest; transcripts; curriculum vitae; transcripts of all college-level work; a description of research interests; and the names, addresses, and telephone numbers of at least three references. Submit to:

Dr. Ralph J. Portier, Chair Search Committee
Institute for Environmental Studies
Room 42, Atkinson Hall
Louisiana State University
Reference Number 000206
Baton Rouge, LA 70803-5705
Telephone: 225-578-4287; FAX: 225-578-4286

LSU is an Equal Opportunity/Equal Access Employer.

SENIOR AND JUNIOR FACULTY POSITIONS
MOLECULAR PATHOGENESIS

As part of a statewide expansion in biomedical research, the Department of Microbiology and Immunology seeks to recruit a Senior faculty member to fill a newly created **ENDOWED PROFESSORSHIP** with a research focus on molecular aspects of bacterial pathogenesis. The ideal candidate should be a nationally recognized leader in their area of expertise and would be expected to bring an active research program. An ability to establish collaborations with other faculty in areas of immunology of chronic inflammation and/or genetics and molecular medicine is preferred. Credentials should include an exemplary publication record, evidence of sustained extramural funding, and documentation of a strong commitment to graduate and medical education. In addition, the Department seeks to recruit a tenure-track **ASSISTANT ASSOCIATE PROFESSOR** with expertise in molecular aspects of bacterial pathogenesis. Applicants should have a well-developed funded research program (Associate rank) or be able to establish and sustain a productive funded research program (Assistant rank). Generous setup funds, a 12-month state line salary, and a highly collaborative environment are provided. A BSL3 facility with capacity for small animal research is available. Applicants should submit curriculum vitae, a statement of research interests, and arrange to have four letters of reference sent to: **Uldis N. Streips, Ph.D., Chair of Pathogenesis Search Committee, Department of Microbiology and Immunology, School of Medicine, University of Louisville, Health Sciences Center, Louisville, KY 40292.** *The University of Louisville is an Equal Opportunity/Affirmative Action Employer.*

A RESEARCH TECHNOLOGIST position is available at the Massachusetts General Hospital Cancer Center, Harvard Medical School, to carry out daily laboratory activities under the direction of an Investigator. Proficiency in molecular biology, molecular genetics, tissue culture, and animal husbandry is ideal. Ability to perform experiments independently. A B.S. or M.S. degree with a strong background in molecular biology. Please send curriculum vitae and names of three references electronically to **e-mail: wchan@partners.org.**

Director, Animal Resources Center (ARC)

The Beckman Research Institute of the City of Hope and the City of Hope National Medical Center, an NCI designated Comprehensive Cancer Center, with combined extramural research funding exceeding $30 million annually, invites applications from qualified veterinarians for the position of Institutional Veterinarian and Director of the Animal Resources Center. The successful candidate will be responsible for directing the centralized and fully AAALAC accredited program that receives unwavering institutional support to maintain excellence in the area of research animal care. The state-of-the-art Animal Resources Center houses the Transgenic Core Facility, which is one of the numerous molecular biology cores that serves the entire City of Hope research community. This position offers an exceptional opportunity to make a substantial contribution to ongoing scientific efforts that use animals in basic, translational, and applied research models, and to join a world renowned and highly collaborative faculty.

Responsibilities:

- Provide programmatic expertise, direction, and leadership in the humane care and use of laboratory animals in biomedical research, including fiscal management and the supervision of the veterinary support and husbandry staff.
- Responsible for the day-to-day operation of the centralized 22,000 sq. ft. laboratory animal facility, housing over 12,000 animals with special emphasis on genetically modified rodent models.
- Serve as a member of the Institutional Animal Care and Use Committee and assure compliance with all applicable laws, regulations, guidelines and AAALAC accreditation standards.
- Direct the veterinary care and health management of all laboratory animals.
- Responsible for the ARC core protocols, training protocol, and sentinel animal protocol, as the Principal Investigator.
- Provide consultative services to the research faculty and staff in the selection of research models, methodology, and technology related to laboratory animal research activities.
- Assess housing and husbandry needs and provide direction, leadership and expertise in coordinating facility expansion and program changes necessary to meet these needs.

Qualifications:

Qualified applicants must possess a DVM/VMD from an AVMA accredited program, have postdoctoral training in laboratory animal medicine, and be licensed to practice in at least one state. ACLAM board certification is desirable. Professional experience should include at least five years of related experience including laboratory animal program management responsibilities.

The Beckman Research Institute at the City of Hope National Medical Center offers an exceptional work environment, competitive salaries, and a comprehensive benefit package. The Beckman Research Institute is located in Duarte, California, 20 miles east of Los Angeles with convenient access to Southern California's diverse cultural and recreational opportunities, and is within driving distance of numerous colleges and universities including 3 campuses of the University of California (UCR, UCLA, UCI), the California Institute of Technology, the University of Southern California, and the Claremont Colleges.

Veterinarians interested in joining a progressive, dynamic research program should forward a letter of interest, the names and contact information of at least three references who are well acquainted with your professional abilities, and a curriculum vitae to:

Roberta Lepins
Human Resources Dept.
City of Hope National Medical Center
1500 E. Duarte Rd.
Duarte, CA 91010

Deadling for application is August 1, 2001.

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GlaxoSmithKline joins together the talented people of Glaxo Wellcome and SmithKline Beecham to create the world's leading research-based pharmaceutical company. We're the market leader in four of the five largest therapeutic categories, with unrivaled global marketing strength and powerful R&D and Manufacturing capabilities supporting a research spend of $4 billion and sales of $24.9 billion annually. Best of all, the industry's greatest, most innovative minds are now assembled under one name. If your goal is to change the world with innovative medicines, now is the time to join our respected team. We currently have an opportunity available in our state-of-the-art facility, located in suburban Philadelphia, PA.

Head, Cardiovascular/Urology Disease Strategy

Working in partnership with Biology and Chemistry Department Heads, you will network with Research and Development staff to ensure alignment with Cardiovascular/ Urology (CV/U) disease area strategies as well as explore and recommend potential new CV/U targets and lead compounds for drug discovery and development. As a leader and strategic thinker with a high level of expertise in the therapeutic area, you will work closely with specialist commercial/medical strategy colleagues to assess market future value, prioritize CV/U projects against target product profiles, and ensure alignment of disease strategies across all drug discovery and development lines. Strong interpersonal skills will facilitate influential communication of both science and business needs in the CV/U areas. Along with your Ph.D. or M.D. you will have up to 8-10 years of experience in a Pharmaceutical Research or Clinical setting and full understanding of the scientific concepts and diseases in your area of expertise.

GlaxoSmithKline is dedicated to an innovative workplace and supports you with career long opportunities and learning. We offer a competitive benefits and compensation package designed to attract and retain the very best. For confidential consideration and efficient processing, please mail your resume to: GlaxoSmithKline, Job Code: 01-0179, P.O. Box 40047, Philadelphia, PA 19106 or visit our website: www.gsk.com Indicating Job Code is essential. Principals only, no agencies please.

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

gsk GlaxoSmithKline

CASE WESTERN RESERVE UNIVERSITY

RESEARCH ASSOCIATE POSITION ALLOGENEIC TRANSPLANT PROGRAM
Case Western Reserve University

A Research Associate position is currently available for studies involving the analysis of umbilical cord blood NK and T cell immunobiology. These studies involve establishment of umbilical cord blood transplant recipient EBV B cell lines and T cell clones from donor alloreactive lymphocytes and gene array analyses using the Affimetrix™ system. Knowledge of cellular immunology and a strong background in molecular biology are preferred.

Applicants must have an M.D. or Ph.D. degree. To apply, please send curriculum vitae, bibliography, and two letters of recommendation to: **M. J. Laughlin, M.D., Director, Allogeneic Transplant Program, Case Western Reserve University/University Hospitals Ireland Cancer Center, 11100 Euclid Avenue, Wearn 433, Cleveland, OH 44106-5065. Telephone: 216-844-8609; FAX: 216-844-3616; e-mail: mjl13@po.cwru.edu.**

Case Western Reserve University is an Equal Opportunity Employer.

CELL IMAGING FACILITY
Institute of Molecular Medicine and Genetics Medical College of Georgia

The Cell Imaging Core Facility of the Medical College of Georgia, Institute of Molecular Medicine and Genetics, invites applications for the position of **RESEARCH SCIENTIST**. Applicants should have extensive experience using laser scanning confocal microscopy. Preference will be given to applicants with a Ph.D. degree and experience in UNIX, Macintosh, and Windows NT operating systems. Our facility includes microscopes dedicated to multiphoton imaging (Zeiss 510 NLO), confocal imaging (Molecular Dynamics), wide-field deconvolution imaging (DeltaVision), microinjection, and several digital light microscopes. A major responsibility will be to maintain the equipment in the facility and to teach techniques and the use of equipment to researchers. The position will be predominately in a service mode with opportunities for collaborative research. Salary will be commensurate with the qualifications and experience of the candidate. Applicants should send curriculum vitae, statement of career directions, and a list of three references to: **Dr. Steven S. Vogel, Director, Cell Imaging Laboratory, Institute for Molecular Medicine and Genetics, Medical College of Georgia, Augusta, GA 30912-3175. E-mail: stevev@immag.mcg.edu.** Applications will be accepted until the position is filled. *Equal Employment Opportunity/Affirmative Action/Equal Access Employer.* AC Number 43179. E-01166173 P.O.

UNIVERSITY OF CALIFORNIA, BERKELEY RESEARCH CHEMIST POSITION

The College of Chemistry NMR facility seeks qualified NMR Research Chemist (salary commensurate with qualifications and experience). Primary responsibilities: train, assist, and advise researchers in use of NMR equipment; consult and do collaborative research with users on experimental design and data interpretation; develop and document methods; write equipment grant proposals for facility; and maintain user profiles along with laboratory and chemical safety. Required qualifications: Ph.D. with more than one year of experience in NMR, excellent written and oral communication, and demonstrated experience with the application of modern multidimensional and heteronuclear methods to solve chemical problems. It is desirable to have proficiency with UNIX operating systems including basic system administration. Submit names of three references with curriculum vitae and list of publications to: **Professor Julie A. Leary, College of Chemistry, University of California, Berkeley, CA 94720** by July 31, 2001. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION PLANT VIROLOGY

The Division of Plant Pathology, University of Idaho, Moscow, Idaho, is seeking a Postdoctoral Scientist to study novel methods for high-sensitivity, high-throughput testing for viruses of potato. The Scientist will have responsibilities for designing experiments and conducting laboratory and greenhouse-based studies. Experience with PCR, RT-PCR, real-time PCR, immunocapture PCR, ELISA, and PCR-ELISA is desirable as is experience with most common recombinant DNA techniques and plant virology. A Ph.D. in plant pathology or a related field is desired. Send a letter of application, curriculum vitae, a description of current work and statement of professional goals/research interests, and the names and addresses of three references.

Send inquiries and applications to: **Dr. P. H. Berger, P.O. Box 442339, University of Idaho, Moscow, ID 83844-2339. Telephone: 208-885-6319; e-mail: pberger@uidaho.edu.**

Applications will be received until a suitable candidate is identified.

To enrich education through diversity, the University of Idaho is an Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSISTANT MOLECULAR IMAGING LABORATORY

Research Assistant position available July 1, 2001, in molecular imaging laboratory for imaging gene expression to monitor gene therapy led by **Vikas Kundra, M.D., Ph.D.** Candidates should have a B.S. degree with laboratory experience. Performance of routine laboratory duties including tissue culture and ordering supplies is expected. Applicants must be able to work with animals and radioisotopes. Successful candidates will gain experience in molecular and cell biology techniques including cloning, immunofluorescence, and Western blotting. Prior experience with these techniques is preferred. Send curriculum vitae, research interests/career plans, and three references to: **Chusilp Charnsangavej, M.D., Department of Diagnostic Radiology, Box 57, University of Texas M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030.** *Equal Opportunity Employer. The University of Texas M.D. Anderson Cancer Center values diversity in its broadest sense. Diversity works at M.D. Anderson. Equal Employment Opportunity/Affirmative Action. Smoke-free environment.*

ASSISTANT PROFESSOR/ SOYBEAN AGRONOMIST

The Agronomy Department, University of Wisconsin, invites applications for a 60% extension and 40% research, 12-month, tenure-track appointment that emphasizes soybean production technologies. The successful candidate will develop an innovative extension program to increase Wisconsin's adoption of economically and environmentally sound soybean production practices and a nationally recognized research program. A Ph.D. in agronomy, crop science, plant breeding, plant genetics, plant pathology, or related plant discipline is required. Minimum salary of $64,000. For complete details, see **website: http://www.ohr.wisc.edu/pvl/.** Position available: January 1, 2002; closing date: October 1, 2001. Send letter of interest, curriculum vitae, official transcripts, and three letters of reference to: **Dr. Chris Boerboom, 1575 Linden Drive, Madison, WI 53706. Telephone: 608-262-1392.** *University of Wisconsin–Madison is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS are available in NIH-funded projects to study the molecular evolution of HIV and HCV using novel nucleic acid technologies. Experience in virology or nucleic acid amplification required. Send cover letter, curriculum vitae, and names of three references to: **Dr. Eric Delwart, Blood Centers of the Pacific, Department of Medicine, University of California San Francisco, 270 Masonic Avenue, San Francisco, CA 94118. E-mail: delwarte@medicine.ucsf.edu.**

POSITIONS OPEN

USDA ars

The Agricultural Research Service, Plant Sciences Institute, Bee Research Laboratory, in Beltsville, Maryland, is seeking a **MICROBIOLOGIST**, GS–403–12/13. Salary is commensurate with experience ($53,156 to $82,180 per annum) plus benefits. *Candidates must be U.S. citizens.* Incumbent will plan and conduct research on the epidemiology and control of bacterial and/or viral diseases of honeybees. Objectives are to (1) characterize bacterial strains of foulbrood and determine factors related to pathogenicity, (2) investigate the pathogenicity of honeybee viruses and their mode of transmission as a means of estimating economic importance, and (3) examine the immunological responses of honeybees to microbial pathogens. For research information, contact: **Dr. Mark F. Feldlaufer; Telephone: 301-504-8637.**

Candidates must request a copy of Vacancy Announcement ARS-X1E-1400 by either calling **Telephone: 301-504-1482** or via **website: http://www.ars.usda.gov** in order to address specific information outlined in the Vacancy Announcement. Applications must be postmarked by July 16, 2001. *USDA/ARS is an Equal Opportunity Provider and Employer.*

JUNIOR SCIENTIST in protein biochemistry: The successful candidates will have a working knowledge of standard biochemical methods (gel electrophoresis, Western blotting, electroelution, chromatography, cellular fractionation, immunoprecipitation) and mammalian cell culture techniques. A B.S./M.S. in biochemistry or a related field is required along with more than two years of laboratory experience.

JUNIOR SCIENTIST in protein identification: We are seeking a B.S./M.S.-level Scientist who has more than two years of experience in protein internal sequence analysis using mass spectrometry and LC methods. Working knowledge of enzymatic digestion of proteins in solution, in SDS-PAGE gel, or on membranes is desired.

LABORATORY DIRECTOR: We are looking for a highly qualified Ph.D. Scientist who has a global knowledge in protein biochemistry, molecular biology and immunology; industrial experience developing antibodies and protein vaccines; minimum of five years of experience supervising Ph.D. Scientists in an industrial setting; and a strong publication record. Expertise in cancer immunotherapy research is preferred. Interested candidates please send your résumés to: **International Bioimmune Systems Inc., 225 Community Drive, Great Neck, NY 11021. FAX: 516-773-8258.**

DRUG DISCOVERY SENIOR SCIENTIST

At Dyax, we value the total employee experience. We offer an entrepreneurial environment where you have a direct impact on the success of the business. We encourage initiative and we provide the support and necessary resources for you to achieve both personal and professional success. From Scientists who are passionate about their work to business developers with a vision, Dyax is a dynamic, exciting place to work!

In this position, you will be responsible for new projects being developed within the Drug Discovery group. By using phage display, you will discover antibodies or peptides that bind to targets identified in the areas of inflammation, cancer, and neurobiology. You should also be able to contribute independently in a group environment working with other Scientists in molecular and cell biology. Experience in molecular biology is required with strong background in immunology, cell biology, or tumor biology. A Ph.D. and three to six years of experience are required as well. Please apply to: **Dyax Corporation, One Kendall Square, Cambridge, MA 02139. E-mail: employment@dyax.com; website: http://www.dyax.com.**

WALTHER
CANCER INSTITUTE

CALL FOR NOMINATIONS

First Annual Walther Prize For Distinguished Contributions to Cancer Research

The Walther Cancer Institute, an Indianapolis-based medical research organization, invites nominations for the first annual Walther Prize. The award will be given to a person who, as a scientist, clinician or administrator/facilitator, has significantly advanced progress in cancer research. Eligible nominees include those who have not received a major award, such as the Lasker Award, Nobel Prize or Bristol-Myers Squibb Award. Persons who have been employed by the Walther Cancer Institute/Foundation are not eligible. The Walther Prize is not limited to U.S. citizens. Other criteria are determined by the Selection Committee.

AWARD:	**U.S. $50,000**
Deadline for receipt of nominations:	November 1, 2001
Announcement of Award Recipient:	April 2002

Rules and official nomination forms are available from
Walther Cancer Institute
3202 N. Meridian St.
Indianapolis, IN 46208-4646
(317) 921-2040
www.walther.org

Selection Committee

John R. Durant, M.D.
Selection Committee Chairman
Consulting Medical Director, Walther Cancer Institute

James O. Armitage, M.D.
University of Nebraska Medical Center

Fawzy I. Fawzy, M.D.
University of California at Los Angeles School of Medicine

Ronald B. Herberman, M.D.
University of Pittsburgh Cancer Institute

Ruth McCorkle, Ph.D.
Yale University School of Nursing

Gillies McKenna, M.D., Ph.D.
University of Pennsylvania Cancer Center

Gerald W. Hart, Ph.D.
Johns Hopkins University School of Medicine

BIOARRAY SOLUTIONS

VICE PRESIDENT OF RESEARCH AND DEVELOPMENT

BioArray Solutions (**website: www.BioArrayS.com**) is looking for a Vice President to lead a team of Molecular Biologists and Chemists in the application of the company's novel programmable bead array technology to DNA, protein, and cellular analysis.

The successful candidate will expand and direct the internal research and development organization, manage external collaborations, and contribute to strategic planning; he/she should combine demonstrated technical excellence with a proven track record of research and development management within molecular diagnostics or related area. Ph.D. or equivalent in the life sciences and minimum of 10 years of experience.

An attractive compensation package will include competitive salary, benefits, and options commensurate with background and experience. Send materials to **e-mail: jobs@bioarrays.com** or **FAX: 732-457-8888**.

FACULTY POSITION
PLANT BIOLOGY
Section of Plant Biology
Division of Biological Sciences
University of California Davis

The Section of Plant Biology, Division of Biological Sciences at the University of California Davis, invites applications for a tenure-track faculty position in plant biology. The position is open to all levels from **ASSISTANT PROFESSOR** to **PROFESSOR** with preference given to applicants at the level of Assistant Professor. Applications will be considered from candidates who have a strong research record and who show promise of developing an innovative program of research. In particular, we seek applicants who carry out state-of-the-art research in modern plant biology with preferred emphasis on studies that integrate and extend molecular studies of plant processes to the level of the whole plant. Because the Section places a high priority on teaching, candidates will also be expected to demonstrate good communication skills to participate fully in undergraduate and graduate teaching and curriculum development. Applicants should forward curriculum vitae, a description of past research accomplishments along with relevant publications, a clearly focused description of their proposed future research goals, and a statement of teaching interests. We also request that the applicant have three letters of reference sent to the Committee on his/her behalf. The position will be open until filled but all application materials, including recommendation letters, must be received by October 1, 2001, to be assured full consideration. Applications should be submitted to: **William J. Lucas, Chair, Plant Biology Search Committee, Section of Plant Biology, One Shields Avenue, University of California Davis, Davis, CA 95616**. The following address may be used for questions: **e-mail: plbsearch@ucdavis.edu**. *The University of California Davis is an Affirmative Action/Equal Opportunity Employer with a strong institutional commitment to the achievement of diversity among its faculty and staff.*

POSTDOCTORAL POSITION/RESEARCH ASSOCIATE/RESEARCH ASSISTANT PROFESSOR in NIH-funded laboratory studying rheumatoid arthritis: (1) gene therapy; and (2) angiogenesis, cell adhesion, and cytokines (*Nature* **376**:517; *Science* **258**:1798; *J. Clin. Invest.* **101**:746). Experience with adenoviral vectors, immunoassays, angiogenesis and cell adhesion assays, arthritis animal models, gene knockout mice, and molecular biology desirable. Send curriculum vitae and three reference names to: **Dr. Alisa Koch, Northwestern University Medical School, Ward 3-315, 303 East Chicago Avenue, Chicago, IL 60611. FAX: 312-503-0994; e-mail: ae-koch@northwestern.edu**.

POSITIONS OPEN

FACULTY POSITION
Molecular Biology/Bioinformatics

California State University Fullerton, Department of Biological Science, is seeking applicants for a full-time, tenure-track position at the **ASSISTANT PROFESSOR** or **ASSOCIATE PROFESSOR** level with expertise in molecular biology and bioinformatics to begin late January 2002 or late August 2002. Applicants must have a Ph.D. and at least two years of postdoctoral experience; a strong background in molecular biology and in the use of bioinformatics tools to solve biological problems; and the ability to teach a core course in molecular biology and genetics, an upper-division/Master's-level course in molecular bioinformatics, and an upper-division/Master's-level elective course in the candidate's area of expertise. Candidates must be committed to excellence in teaching at both the undergraduate and Master's levels and to the development of a productive, externally funded research program involving students at both levels. The successful candidate will be expected to participate in developing an interdepartmental bioinformatics program. Send curriculum vitae (including a history of grant support), a statement of research plans, a statement of teaching experience using active learning and inquiry-based pedagogy (including core and elective course preferences), a summary of teaching philosophy, three related publications, and have three letters of recommendation sent to: **Molecular Biology/Bioinformatics Search, Department of Biological Science, California State University Fullerton, P.O. Box 6850, Fullerton, CA 92834-6850. Website: http://biology.fullerton.edu**. Review of applications will begin 10 September 2001 and continue until a suitable candidate is appointed. *Affirmative Action/Equal Opportunity Employer/Americans With Disabilities Act Employer. Women and minority candidates are particularly encouraged to apply*

PROFESSOR
Immunology and Infectious Diseases
Harvard School of Public Health

The Harvard School of Public Health is seeking applications for a Professor of immunology and infectious diseases with expertise in the area of parasitic protozoa. Applicants should have an established research program with an emphasis on cell biological, molecular, or genomic approaches to address important questions of disease pathogenesis and parasite biology. Preference will be given to individuals with a broad research interest in diseases of public health importance and demonstrated capacity for multidisciplinary research. The successful candidate will be expected to actively participate in both research and training activities. The successful candidate will hold a professorial appointment in the Department of Immunology and Infectious Diseases and a joint appointment in the Department of Microbiology at Harvard Medical School.

Please send curriculum vitae, a brief statement of research interest, and the names of three references to:

Chair, Senior Search Committee
Department of Immunology and Infectious Diseases
Harvard School of Public Health
665 Huntington Avenue, FXB 205
Boston, MA 02115

The School is especially interested in increasing representation of women and members of minority groups in the faculty and particularly encourages applications from such candidates.

POSTDOCTORAL POSITION is available immediately to study interactions of angiogenic growth factors and endothelial cells with matrix proteins. Candidates should have a Ph.D. in biochemistry or a related field and experience in cell and molecular biology will be helpful. Send curriculum vitae to: **Charles W. Francis, M.D., University of Rochester Medical Center, Vascular Medicine Unit, Box 610, Rochester, NY 14642**. *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

SUPERVISORY EDUCATION SPECIALIST
FOOD AND DRUG ADMINISTRATION
Center For Veterinary Medicine (Staff College)

The Food and Drug Administration (FDA) is seeking candidates for the position of Supervisory Education Specialist to establish and maintain the Staff College located in the Center for Veterinary Medicine (CVM) of the FDA. The incumbent directs the development and implementation of a comprehensive organizational learning program that includes professional, scientific, managerial, and support functions and establishes the educational, training, and performance-related activities. Plans and implements strategic program goals that further increase the science knowledge base of the Center. It is desirable that candidate be recognized as an authority in training and development. *The incumbent of this position must be a U.S. citizen.* The salary range is $74,697 to $114,224. The position is located in Rockville, Maryland. Further information regarding qualification requirements and procedures for applying for the position may be obtained from the vacancy announcement FDA-1-4039 (status candidates) or recruitment bulletin FDA-1-0161 (nonstatus candidates). These announcements can be found at the FDA/CVM **website: http://www.fda.gov/cvm/vacancy/careeropps.html** or from the Office of Personnel Management **website: http://www.usajobs.opm.gov** or **Ms. Paula Searle; Telephone: 301-827-4579**. Applications will be accepted through August 3, 2001. *FDA has a smoke-free environment and is an Equal Opportunity Employer.*

Xenogen Corporation is a new, exciting biotechnology company in the San Francisco Bay area, employing a patented technology to use bioluminescence to monitor infectious disease and cancer *in vitro* and in the living animal. We are seeking an enthusiastic, motivated individual for the position of **SENIOR SCIENTIST/PROJECT MANAGER** in our Infectious Diseases group. Requirements include a Ph.D. in microbiology or related area with five to seven years of postdoctoral or industrial experience. Experience in microbial pathogenesis and in animal modeling is a strong advantage. The successful candidate will also possess excellent communication and interpersonal skills. The ability to work in a diverse, team-oriented environment is essential. The position requires at least 50% effort devoted to developing new clients and managing ongoing client projects. This will require both domestic and overseas travel. In addition, the successful candidate will contribute to our internal development of new models utilizing bioluminescent organisms to study infectious processes and treatment. Fax or mail curriculum vitae to:

Human Resources Department
Xenogen Corporation
860 Atlantic Avenue
Alameda, CA 94501
FAX: 510-291-6146
Website: www.xenogen.com

Equal Opportunity Employer.

RESEARCH ASSOCIATES
YALE UNIVERSITY
SCHOOL OF MEDICINE

Seeking Master's degree level or equivalent with backgrounds in the following areas: molecular biology, cell and tissue culture, immunology, biochemistry, radiological techniques, bioinformatics, or functional genomic research to support biomedical research in all areas of the Yale School of Medicine. Competitive salary and excellent benefits. E-mail résumé and cover letter to **e-mail: jobs@yale.edu** (use Source Code EASCM01SG) or **FAX: 203-432-9817**. Visit our **website: www.yale.edu/hronline**. *Yale University is an Equal Opportunity/Affirmative Action Employer.*

I will harness

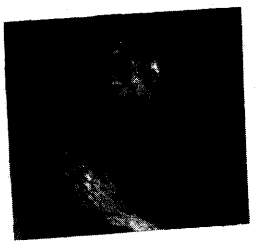
nature's biodiversity

to discover

new medicines

Dr Tony Buss
Head of Centre
Centre for Natural
Product Research (CNPR)

I want



Singapore to be

a centre for

genomics discovery

Dr Edison Liu
Executive Director
Genome Institute of
Singapore (GIS)

I will use

computing technologies

to drive

biological discovery

Dr Prasanna Kolatkar
Principal Investigator
Institute of Molecular
and Cell Biology (IMCB)

I want to do it all from Singapore!

If you want to join the exciting revolution taking place in the biomedical sciences, Singapore is the place to be. We are not only the region's top biomedical hub, but also a key centre for private sector research, development and training. Be part of the exceptional progress being made in the study of diseases, especially those prevalent in Asia. What's more, the government is injecting SGD$2 billion into strengthening the research infrastructure, developing human capital, promoting private sector R&D and investing in promising ventures. Which means you could be at the forefront of the next generation of biomedical breakthroughs. To be at the cutting edge of this growing industry, call your nearest SEDB office today or visit www.Biomed-Singapore.com

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POSTDOCTORAL TRAINING ELECTROPHYSIOLOGY/MEMBRANE TRANSPORT

Applications are invited for postdoctoral training in electrophysiology/membrane transport/imaging. Fellowship-funded positions are available in 11 established, interacting laboratories. For specific areas, see **website: http://physiology.cwru.edu/cwru_html**. The laboratories provide an excellent training environment with open-format, state-of-the-art facilities that encourage intellectual interaction. Related research areas of signal transduction, molecular biology, structural biology, and systems-integrated physiology are well represented in the Department. *Applications are limited to U.S. citizens or permanent residents* based on NIH training grant restrictions. E-mail or send curriculum vitae, a description of research accomplishments and career goals, and the names of three references to: **Dr. Corey Smith, Department of Physiology and Biophysics, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106-4970. E-mail: cbs16@po.cwru.edu**. *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS are available immediately on a NIH-funded project to study receptor tyrosine kinase-mediated novel signaling mechanisms for promoting growth and survival of hematopoietic cells (*Blood* **93**:537, 1999; *Mol. Cell. Biol.* **20**: 6779, 2000). Techniques include retroviral gene transfer, flow cytometry, microarray expression profiling, and bioinformatics. Candidates should have a recent Ph.D. in molecular cell biology. Experience in signal transduction and primary mouse culture systems desirable. Send curriculum vitae and three references to: **Angel Lee, M.D., Ph.D., Department of Pharmacology, University of Michigan Medical School, 1301 MSRB III, 1150 West Medical Center Drive, Ann Arbor, MI 48109. E-mail: awmlee@umich.edu**. *Equal Opportunity/Affirmative Action Employer.*

Two **POSTDOCTORAL POSITIONS** available immediately to study an NIH-funded project dealing with transcriptional regulation of MUC1, an important cell-surface cancer antigen. Both positions are for a period of three years and the salary is commensurate with previous experience. Prospective candidates are expected to have basic techniques in molecular biology/protein purification, preferably in transcription research. Prospective candidates should send a résumé, a brief summary of previous research, and names of three references to: **Dr. K. C. Kim, Department of Pharmaceutical Sciences, University of Maryland, 20 North Pine Street, Baltimore, MD 21201. E-mail: psc_search@rx.umaryland.edu**. *Equal Opportunity Employer.*

POSTDOCTORAL POSITION CRYSTALLOGRAPHY

Crystallographic projects investigating motor protein function with crystals of mutants in hand. Experience in crystallography required. Four faculty Crystallographers operate a multiuser facility. Opportunity to learn molecular biological and biochemical techniques. Competitive salary. **Website: http://physioweb.med.uvm.edu/~trybus**. Send curriculum vitae to: **Dr. K. Trybus, Given E205, University of Vermont, Burlington VT 05405. E-mail: trybus@physiology.med.uvm.edu**. *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION in neuro/cord-blood stem cell laboratory. Candidate should have Ph.D., background in molecular biology, neuroscience, and cell biology. Projects are in the laboratory of **Rick I. Cohen** and focus on the molecular differentiation of stem cells into the neural lineage and guidance molecules controlling CNS regeneration. Send letter, curriculum vitae, summary of past work, and three references to: **C. Tule, Coriell Institute for Medical Research, 401 Haddon Avenue, Camden, NJ 08103 U.S.A.; FAX: 856-964-0254; e-mail: ctule@cimr.umdnj.edu**. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION: Candidates with experience in cell transformation/G proteins/signal transduction to study regulation of the Rho small G protein pathway that mediates actin cytoskeletal organization and cell proliferation. Research focuses on regulation by Rho GEFs, adhesion proteins, and pharmacological inhibitors. Position requires Ph.D. and *U.S. citizen/permanent residency* to qualify for NIH training grant. Please send curriculum vitae with names of references to: **Dr. D. Toksoz, Department of Physiology, Tufts University School of Medicine, 136 Harrison Avenue, Boston, MA 02111. E-mail: d.toksoz-exley@tufts.edu**. *Equal Opportunity/Affirmative Action Employer.*

Massachusetts General Hospital, Harvard Medical School: **POSTDOCTORAL POSITION** available in basic vaccine research. Project will involve the development and use of attenuated bacterial vectors to induce mucosal and systemic immune responses. A strong background in molecular biology, bacterial genetics, and immunology is required. Project involves bench and animal work. Please send curriculum vitae to: **Dr. Edward T. Ryan, Division of Infectious Diseases, Massachusetts General Hospital, Jackson J504, Boston, MA 02114. E-mail: etryan@partners.org**.

POSTDOCTORAL AND RESEARCH POSITIONS are available to study molecular biology of Leydig cells. Recent Ph.D. with experience in molecular biology and/or protein biochemistry required. Send résumé and names of three references to: **Tu Lin, M.D., Professor and Director, Division of Endocrinology, University of South Carolina School of Medicine, Department of Internal Medicine, Medical Library, Room 316, Columbia, SC 29208. E-mail: lin@med.sc.edu**. *The University of South Carolina is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION in natural products/organic chemistry at the National Institutes of Health available immediately. Candidates must have a Ph.D. in or related to organic chemistry and expertise in total structure elucidation and modern NMR methods is essential. Experience in synthetic organic chemistry is a plus. Interested candidates should send curriculum vitae, three letters of recommendation, and a copy of Doctoral degree to: **Dr. Carole A. Bewley, LBC-NIDDK, 9000 Rockville Pike, Bethesda, MD 20892-0820**. *The NIH is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION MITOCHONDRIAL FUNCTION

Research employs optical spectral analysis to determine cellular oxygenation and mitochondrial energetics in muscle. Ph.D. in bioengineering, physiology, or biophysics required. Please send curriculum vitae and names of references to: **Kenneth A. Schenkman, M.D., Ph.D., University of Washington, Children's Hospital CH–05, 4800 Sand Point Way N.E., Seattle, WA 98105. E-mail: kschen@chmc.org**.

POSTDOCTORAL POSITION available to study the regulation of mammalian apoptosis by phosphorylation and the BCL2 family. Candidates with a Ph.D. or M.D. degree and motivated to work in a competitive molecular biology field are encouraged to contact: **Elizabeth Yang, M.D., Ph.D., 518 PRBII, Vanderbilt Cancer Center, Nashville, TN 37232. Telephone: 615-936-3585; e-mail: elizabeth.yang@mcmail.vanderbilt.edu**.

POSTDOCTORAL FELLOWS

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

NIH POSTDOCTORAL POSITION MEMBRANE PROTEIN BIOCHEMISTRY

Applications are invited for a Postdoctoral position in the Laboratory of Molecular Biology, National Institute of Diabetes and Digestive and Kidney Diseases, to work with **Susan Buchanan** on the structure determination of membrane proteins. Research projects (in collaboration with **Reinhard Grisshammer**) include bacterial inner-membrane proteins and G protein-coupled receptors.

Candidates ideally will have experience with membrane protein expression, purification, and characterization and/or crystallization, but highly qualified candidates from other areas of biochemistry are also encouraged to apply.

Appointment duration is up to five years renewed on a yearly basis. Salary is based on education and experience with a range of $30,800 to $34,500. Applicants will have fewer than five years of postdoctoral experience.

Applicants should send their curriculum vitae and the names and addresses of three references to: **Susan Buchanan, LMB, NIDDK, NIH, Building 5, Room 334, 5 Center Drive, Bethesda, MD 20892-0580 U.S.A.** Inquiries can be made to: **Susan Buchanan; e-mail: skbuchan@helix.nih.gov** or **Reinhard Grisshammer; e-mail: rkgriss@helix.nih.gov**.

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

POSTDOCTORAL POSITIONS New York University School of Medicine

Two Postdoctoral positions are available starting approximately September 2001 to study the role of FGF signaling in bone development and morphogenesis using tissue culture systems, transgenic, and knockout technology. Other projects include the regulation and role of FGF–4 gene expression during development and studies on FGF–1 and FGF–2 knockout mice. Candidates with a good background in molecular and cellular biology and an interest in regulation of gene expression, signal transduction, and development are encouraged to apply. Please send curriculum vitae, description of research interests, and the names of three references to:

Claudio Basilico, M.D.
Department of Microbiology
NYU School of Medicine
550 First Avenue
New York, NY 10016
FAX: 212-263-8714
E-mail: basilc01@med.nyu.edu

PEPTIDE SYNTHESIS CHEMIST: Wadsworth Center seeks a Chemist who will advise Investigators in the selection, design, and special modifications of synthetic peptides and prepare annual budget requests and annual reports for a peptide synthesis core facility. The candidate will have a Bachelor's degree in chemistry (minimally) and experience with solid-phase peptide synthesis HPLC and amino acid analysis. Send curriculum vitae to: **James A. Dias, Ph.D., c/o Ellen B. Shippey, David Axelrod Institute for Public Health, New York State Department of Health, 120 New Scotland Avenue, Albany, NY 12208**.

POSTDOCTORAL FELLOW MOLECULAR IMAGING

Two **POSTDOCTORAL POSITIONS** available July 1, 2001, in molecular imaging laboratory for imaging gene expression to monitor gene therapy led by **Vikas Kundra, M.D., Ph.D.** Candidates should have experience in molecular biology and viral delivery systems or signal transduction, preferably with G proteins. Send curriculum vitae, research interests/career plans, and three references to: **Chusilp Charnsangavej, M.D., Department of Diagnostic Radiology, Box 57, University of Texas M.D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030**. *Equal Opportunity Employer. The University of Texas M.D. Anderson Cancer Center values diversity in its broadest sense. Diversity works at M.D. Anderson. Equal Employment Opportunity/Affirmative Action. Smoke-free environment.*

POSITIONS OPEN

POSTDOCTORAL POSITION: A Postdoctoral position is available in the Department of Pathology of the University of Michigan. The position is funded by an NIH training grant and the *applicant must be a U.S. citizen or hold a green card.* The research studies the basic response to sepsis using a combination of animal and cellular studies. Modulation of the inflammatory response will be done using specific cytokine inhibitory strategies. The applicant will work with a multidisciplinary team investigating sepsis. Members of the team include Pathologists, Anesthesiologists, and trauma Surgeons. The candidate should have experience in basic methods of molecular biology and handling mice. Knowledge of cytokines including methods to measure the cytokines is also desirable. Additional information concerning the laboratory can be found at **website: http://www.pathology.med.umich.edu/faculty/Remick/d_remick_blosketch.htm**.

Qualified candidates should send their curriculum vitae and the names of three references (by mail, FAX, or e-mail) to: **Daniel Remick, M.D., M2210 Med Sci I, 1301 Catherine Road, Ann Arbor, MI 48109. E-mail: remickd@umich.edu**.

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RESEARCH ASSOCIATE/ POSTDOCTORAL RESEARCH POSITIONS (FOUR)

Department of Physiology and Pharmacology, the CUNY Medical School/Sophie Davis School of Biomedical Education, has Research Associate/Postdoctoral positions for molecular or cellular Biologist, Neurobiologist, Neuropharmacologist, Neuroanatomist/Morphologist, or Neurophysiologist. To participate in neurobiological investigation in cells and tissue or dopamine and serotonin receptors, transmembrane and intracellular signaling, phosphorylation/dephosphorylation mechanisms, transcription factor regulation, electrophysiological recording in brain slices, and patch clamp recordings. Salary range: $45,000 to $65,000 per annum (commensurate with qualifications) plus generous benefits. See details at **website: http://www.ccny.cuny.edu/position/**. Submit curriculum vitae and names, addresses, and telephone numbers of three professional references to: **Ms. M. Velazquez, Recruitment, Department of Physiology and Pharmacology, The CUNY Medical School, 138th Street and Convent Avenue, New York, NY 10031**. *CUNY Medical School is an Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS
Department of Molecular Genetics, Biochemistry, and Microbiology
Gene Regulation and Development or Biology of the Na, K-ATPase

Two Postdoctoral positions are available in the areas of (1) developmental biology of the KLF transcription factors, particularly their role in globin gene regulation and lymphocyte and lung biology development and (2) Na, K-ATPase function utilizing knockout and gene replacement technology.

The laboratory and Department provide an outstanding environment for the development of research careers. Transgenic, knockout, DNA, and gene array cores and mouse physiology facilities are available. Résumés should be sent to: **Dr. Jerry B. Lingrel, University of Cincinnati, Department of Molecular Genetics, Biochemistry, and Microbiology, 231 Albert Sabin Way, Cincinnati, OH 45267-0524**.

POSTDOCTORAL RESEARCH ASSOCIATE position available for a Neurobiologist in an independent laboratory studying pain, temperature, and itch sensory systems at spinal and forebrain levels. Experience with methods such as single-unit physiology, immunohistochemistry, tract tracing, laser capture expression analysis, or functional imaging needed. Contact: **Dr. A. D. (Bud) Craig, Barrow Neurological Institute, Phoenix, AZ; Telephone: 602-406-3385; e-mail: bcraig@chw.edu**.

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP in NMR spectroscopy of cancer. A Postdoctoral position is available immediately to evaluate new 13C and 1H NMR spectroscopy methods for studying pharmacokinetics and pathophysiology in cancer (for various chemotherapeutic and differentiating agents). The work will be conducted *in vivo* and *in vitro* with two state-of-the-art MRI/S Varian systems (4.7T, 50cm and 9.4T, 8.9cm). Experience with NMR spectroscopy or imaging is essential. Experience with tissue culture and small animal handling is desirable. Initial appointment: one year; possible extension to two years. Salary will be commensurate with experience. Please contact: **Anthony Mancuso, Ph.D.** or **Jim Delikatny, Ph.D., Department of Radiology/4283, University of Pennsylvania, B1 Stellar-Chance Laboratory, 422 Curie Boulevard, Philadelphia, PA 19104. Telephone: 215-898-1805; FAX: 215-573-2113; e-mail: mancuso@rad.upenn.edu or delikatn@rad.upenn.edu**. *The University of Pennsylvania is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL FELLOWSHIP in cancer pharmacokinetics/apoptosis studies with NMR. The Department of Radiology at the University of Pennsylvania is seeking a Postdoctoral Fellow to evaluate localized 13C NMR methods to monitor pharmacokinetics of labeled chemotherapeutic agents during treatment of intracranial and subcutaneous tumors in small animals. These methods will also be examined for their potential to detect changes associated with apoptosis. 9.4 Tesla/8.9cm and 4.7Tesla/50cm systems are available for this work. Required: Ph.D. in biology, chemistry, physics, or engineering. Experience in handling small animals, tumor implantation, and/or NMR spectroscopy is highly desirable. Please send curriculum vitae and names of three references to: **Anthony Mancuso, Ph.D., Department of Radiology/4283, University of Pennsylvania, B1 Stellar-Chance Laboratory. 422 Curie Boulevard, Philadelphia, PA 19104-6100. Telephone: 215-898-1805; e-mail: mancuso@rad.upenn.edu; FAX: 215-573-2113**. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.*

YALE UNIVERSITY SCHOOL OF MEDICINE

POSTDOCTORAL POSITION available in stem cell research focusing on tissue-specific transgene expression after bone marrow transplantation (see recent publication *Cell* **105**:369–377, 2001). Candidates with a strong background in molecular and cellular biology are encouraged to apply. *Applicant must be U.S. citizen or permanent resident.* Send curriculum vitae, statement of research interests, and names of three references to: **Diane Krause, M.D., Ph.D., Yale University, 333 Cedar Street, P.O. Box 208035, New Haven, CT 06520. E-mail: diane.krause@yale.edu**.

POSTDOCTORAL RESEARCH ASSOCIATE. NIH-funded positions are available immediately to study molecular mechanisms of exocytosis, cell differentiation, and oxidative/nitrosative stress in lung epithelial cells. Send curriculum vitae to: **Dr. Lin Liu, Department of Physiological Sciences, Oklahoma State University, 264 McElroy Hall, Stillwater, OK 74078. Telephone: 405-744-4526; e-mail: liulin@okstate.edu**. *OSU is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION, Harvard Medical School, available to study glutamate transporters and their role in excitatory synapses and in neurodegeneration. A background in molecular neurobiology, electrophysiology, and interest in oocyte expression studies is essential. Send curriculum vitae to: **Paul A. Rosenberg, M.D., Ph.D., Department of Neurology, Children's Hospital, 300 Longwood Avenue, Boston, MA 02115. E-mail: paul.rosenberg@tch.harvard.edu**.

POSITIONS OPEN

POSTDOCTORAL POSITION

The George Washington University, Department of Microbiology and Tropical Medicine, is recruiting for a Postdoctoral position available 1 July 2001. This position pursues the study of pulmonary immune responses to microbial and viral pathogens using *in vivo* mouse models. The research interests of the laboratory are to understand how different types of immune responses are initiated within the pulmonary tract in the context of different forms of immunogens. Applicants should have a Ph.D., M.D., or M.D./Ph.D. Experience in techniques of cellular immunology and working with laboratory mice is preferred. Competitive salary and benefits. Please send curriculum vitae with references to: **Ray Loomis, Department of Microbiology and Tropical Medicine, 2300 Eye Street, N.W., Room 745, Washington, DC 20037. E-mail: mtmrgl@gwumc.edu**. Review of applications to begin immediately and continue until position is filled. *The George Washington University is an Equal Opportunity/Affirmative Action Employer.*

MACROMOLECULAR CRYSTALLOGRAPHERS/STRUCTURE-BASED DRUG DESIGN

STAFF and **POSTDOCTORAL POSITIONS** are available for Macromolecular Crystallographers to participate in ongoing structural studies of HIV reverse transcriptase and of other viral targets aimed at the development of antiviral drugs. Ideal applicants will have an advanced degree and three or more years of experience in macromolecular structure determination, analysis, and refinement as well as instrumentation and computing skills. Salary commensurate with experience. Send curriculum vitae, a description of research experience, and names and contact information for three references to: **Dr. Eddy Arnold, Center for Advanced Biotechnology and Medicine and Rutgers University, 679 Hoes Lane, Piscataway, NJ 08854-5638. FAX: 732-235-5788; e-mail: arnold@cabm.rutgers.edu**. *Affirmative Action/Equal Opportunity Employer.*

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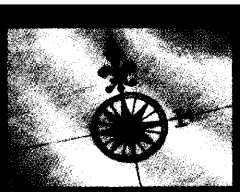

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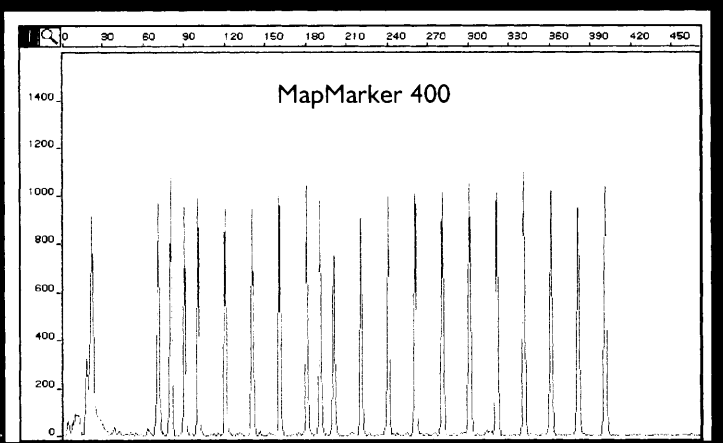

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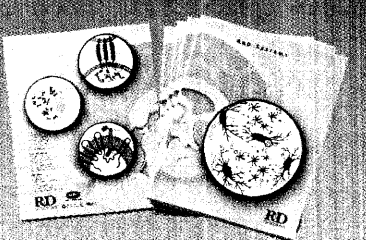

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