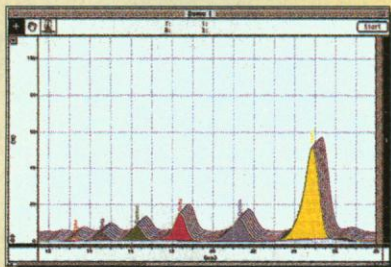


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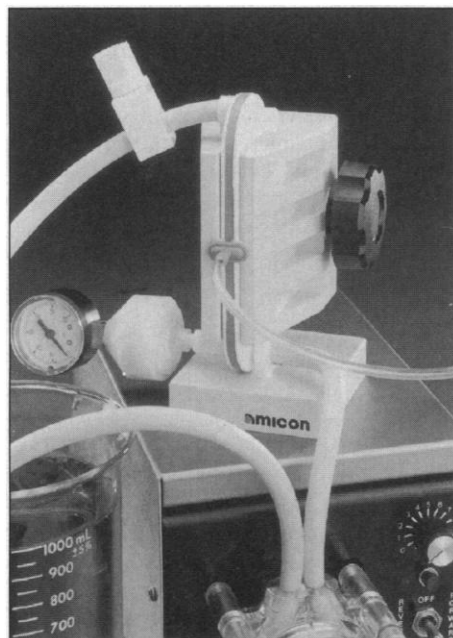
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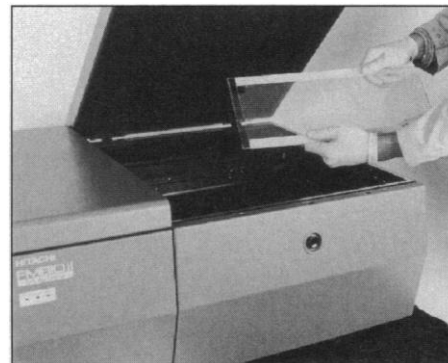


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Growing Opportunities: European Careers and Graduate Programs for Life Scientists

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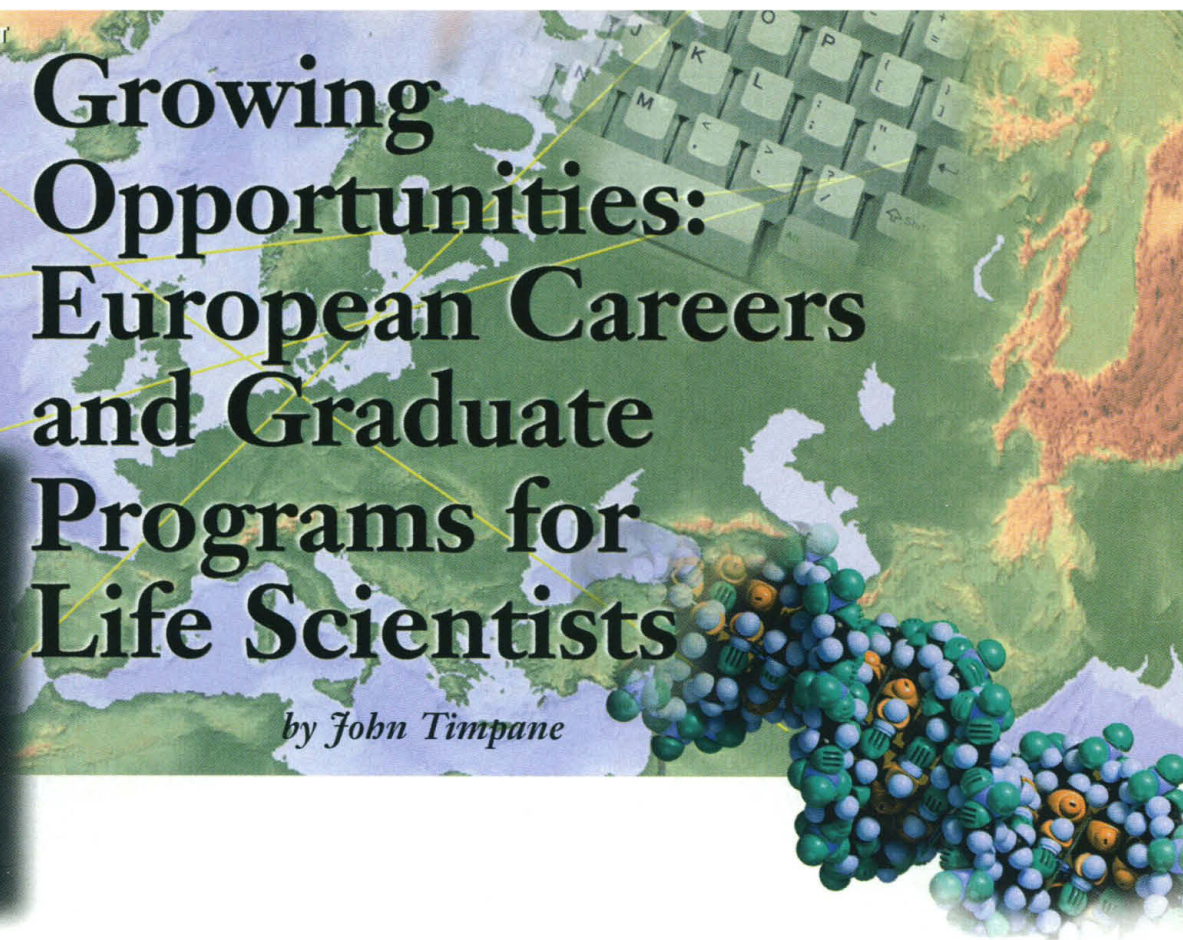
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Growing Opportunities: European Careers and Graduate Programs for Life Scientists

by John Timpane



Science employment is changing rapidly in Europe. Academia and industry, after centuries of frigid relations, are now engaged in a warm, not to say heated, conversation. What skills do new scientists need? What will the attractive fields and skills be tomorrow, next year, and next century?

Below, we speak to prominent scientists engaged in that conversation. Researchers at Nottingham Trent University, the University of Genoa, and the Swiss Federal Institute of Technology speak of efforts in academia to prepare graduates for scientific careers. Scientists at Glaxo Wellcome, Nestlé, Novartis, Pfizer, Roche, SmithKline Biologicals, and the Swedish Research Council for Engineering Sciences tell of the scientific and personal attributes that can help job-seekers find the jobs they seek. Everyone agrees: it is a time of rapid change—an information boom. The object is to train and hire the people who can turn today's boom into tomorrow's symphony.

Graduate Programs and Employment in Europe: Focus on Biotechnology

Martin Griffin, professor of biochemistry and head of research for the faculty of science and mathematics at Nottingham Trent University, has a fascinating sideline as an expert on biotechnology education and

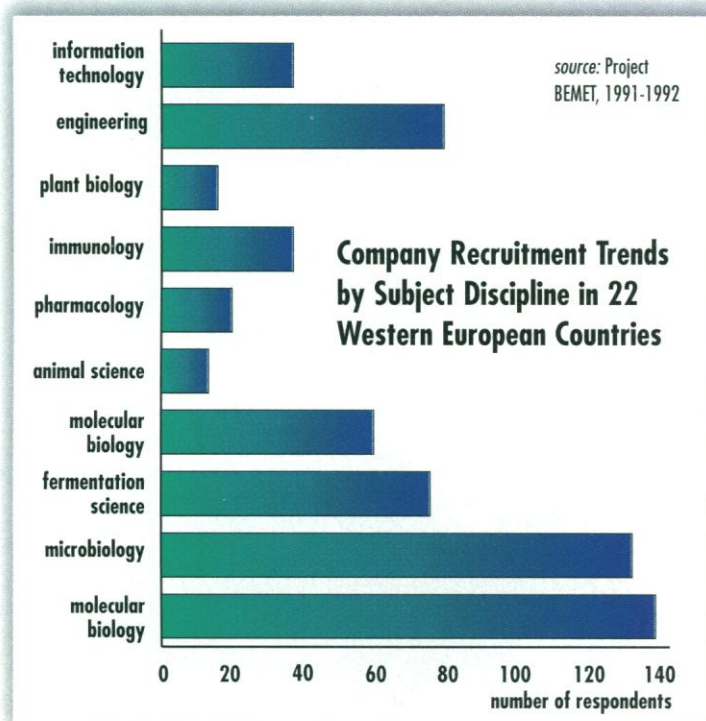


Martin Griffin

employment in Europe. Thanks to his efforts, and those of the UK Interest Group for Education in Biotechnology, Project BEMET—Biotechnology in Europe, Manpower, Education, and Training—began in 1990, with EU funding, to survey European biotech and graduate programs in biotechnology. Europe's educational system is in fact a variety of systems. "Europe is a whole series of different cultures, with many different ways of approaching education at the graduate and postgraduate level," Griffin says. Europe's best universities turn out world-class chemists, engineers, and life scientists, but only recently have they begun to fashion courses specifically aimed at creating biotechnologists. You can now find such courses all over Europe, at the Vrije Universiteit Brussel, the Universidad Autonoma de Madrid, the Université de Montpellier, the University of Milan, and elsewhere.

European biotech is a \$45 billion industry expected to grow to about \$115 billion by the year 2000. In their recent research on this industry, Griffin and colleagues have found a few perplexing paradoxes. As of 1992, there were about 350 dedicated biology firms in sixteen European

John Timpane, PhD, writes frequently on the biotechnology and pharmaceutical industries.



countries. Three years later, that number had risen by only 50, indicating much slower growth than anticipated. While biotech was playing an important role in health care, such was not the case in other more traditional industrial sectors, such as textiles and food and drink. "If traditional industries in Europe are to remain competitive with the US and Japan," Griffin says, "they've got to assimilate biotech very rapidly."

Good dialogue among government, industry, and academia appeared to be somewhat lacking throughout Europe. Griffin and colleagues quote a doctor at a small Irish biotech firm who says that "universities could do a lot more to create a more 'commercially friendly' environment and encourage the growth of small 'incubator' companies internally," and the CEO of an Italian firm who says, "Our education system is not commercially aware of or attuned to the needs of the biotechnology industry."

What does industry think of recent graduates? "From the large multinationals we hear that people don't have good enough lab skills," Griffin says. "From the smaller companies we hear more of a need for people who can multitask, who are more comfortable with both science and management." European academia, he says, is just now realizing the necessity of industrial internships: "It was surprising how few undergraduate courses in Europe—fewer than one in five—offered them."

The European Doctorate in Biotechnology

As Franco Celada of the University of Genoa puts it, "If we have science employment problems in Europe today, it's because industry and the right people cannot find each other. And we've got to take some steps to change that." One of those steps is the European Association for Higher Education in Biotechnology (HEduBT), a group of universities, industries, and institutes working to establish a European standard for MS and PhD degrees in biotechnology. It began at an EU meeting in 1991, when a scientist all but cried out, "Our industries don't understand what our educational titles mean. That's a drawback both for the companies and for the job-seekers who don't get hired." Celada chaired a task force that reported back with a series of recommendations, chief among them a doctoral standard for Europe.

"In the United States," Celada says, "the PhD structure is reasonably similar from institution to institution. Here, it differs from country to country, in number of years, laboratory work, course work or no course work, even a thesis."

"But we wanted to do it right," Celada says. "We'll take anyone who gets a national doctorate in one of the disciplines involved in biotechnology and then, if certain rules we stipulate are followed, that person will receive an additional document granting them the Eurodoctorate, and anywhere they go,

Griffin cautions that students need to do their homework: "You have to be very careful about the structure and requirements of these courses." The BEMET publication *European Compendium of Higher Education Courses in Biotechnology* lists programs at 213 institutions throughout Europe. One excellent feature of that book is a flow chart entitled simply "Choosing the Right Course."

For more information on Project BEMET, contact their Web page (<http://euler.ntu.ac.uk/international/bemet.html>).

prospective employers will know what the degree means."

The Eurodoctorate requirements call for a four-year program, including

- six months of theoretical course work in one of four underlying biotechnological disciplines ([micro]biology, biochemistry, molecular biology/genetics, and bioprocess engineering/technology), plus familiarity in the other three disciplines. Approved courses include those in "ethical, social, legal, and managerial aspects of biotechnology," which may include course work on bioethics and patenting.
- six months of laboratory training, "either in the form of placements or as an integral part of the thesis work";
- a minimum of three years of thesis work finalized in a thesis. This time will include a minimum of three months of research work in another European country. Internationality is a prime requisite. "This almost goes without saying," according to Celada. The thesis must be reviewed favorably by referees from two countries other than the home country. Candidates must present and defend the thesis in one language, demonstrate competence in a second, and should have "acquired a cross-cultural appreciation of the way of life/language in at least one other qualifying European state."

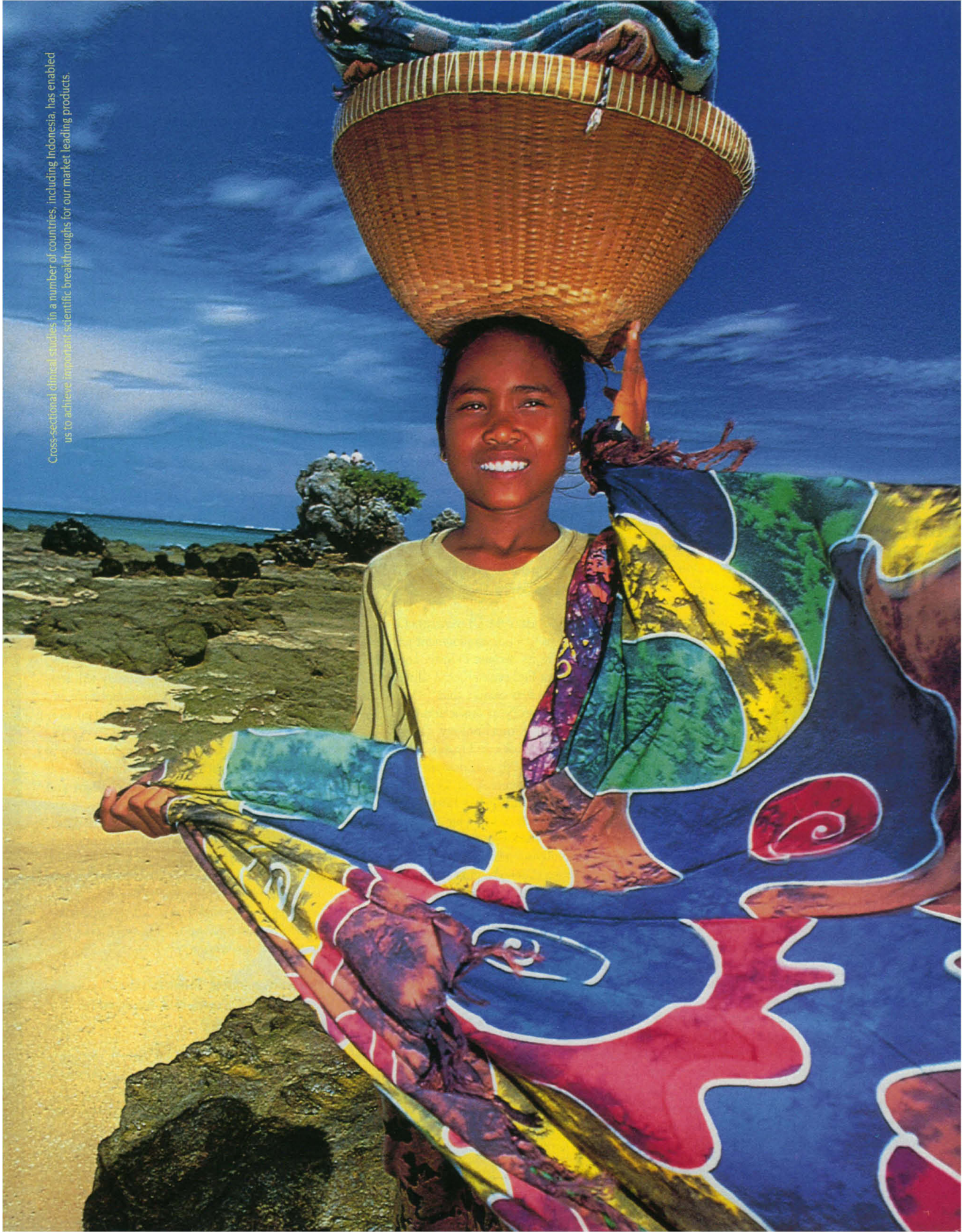
The Eurodoctor in Biotechnology will thus be well-concentrated yet cross-disciplinary and cross-cultural, with laboratory skills and possibly industrial experience and managerial savvy. "We did not want to limit recognition to technical courses only," Celada says. "We wanted to recognize courses such as those in ecology, and those in how to manage a small company. If this person knows about intellectual property rights, mathematical modeling, or communications science, along with the biological concentration, we think that is a mark of distinction to be both recognized and encouraged."

For more information on the *European Doctorate in Biotechnology*, see the HEduBT Web page (www.cba.unige.it/hedubt).

Training and Retraining: The Swiss Federal Institute of Technology

ZÜRICH, SWITZERLAND—"When I started, I thought I'd have a lifetime job in a single field—which was totally incorrect," says Helmut Hauser, professor of biochemistry at the Swiss Federal Institute of Technology (ETH). Hauser, trained as a chemist, kept encountering

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lipid chemistry, protein chemistry, and molecular biology in his research and realized he had to go back to school—which he did, working in molecular biology at the University of Basel. His story is becoming increasingly common.

“You see many scientists in Europe retraining themselves,” Hauser says. “Retraining takes a certain amount of initiative because it’s still hard to find a true crossover course. But it can be done, and there’s no substitute. You can’t just read up on molecular biology; you need the hands-on laboratory experience.”

With such a preamble, no one should be surprised to hear Hauser’s advice for undergraduates in chemistry. “I’d say do a PhD in biology or biochemistry. Then a postdoc in a lab that specializes in molecular or cell biology. You end up with enough fundamental science to stay up on new developments. You have recombinant DNA bench skills and cell biology expertise from your postdoc. It’s not a foolproof recipe, but it offers enough diversification to help you survive the next five years.”

His advice reflects the atmosphere both in academic science and in industry. “While European biopharma still demands excellent fundamental training, say, in organic synthetic chemistry,” Hauser says, “they also now want understanding and hands-on experience in molecular biology.” At the ETH, chemistry PhDs are encouraged to take courses in

cell biology and molecular biology, and they are counseled to seek divergent postdocs.

Hot fields at the ETH include the use of NMR, building on the work of Nobel Laureate Richard Ernst. The department of molecular biology and biophysics, headed by Kurt Wüthrich, is producing experts in biological structure analysis by NMR. Even in the strong physics department at the ETH, there is a record of physics PhDs who cross-fertilize into life science work. And computational sciences is very strong, responding quickly to the sudden demand for computational chemistry and biology.

Five years ago, industry called for molecular biologists; now there appears to be somewhat of a glut. Currently the call is out for computational scientists. “This lag is bound to occur because changes in science are so rapid,” Hauser says. “It’s going to be more and more important to keep your eye on developments, and that’s what we’re trying to do here.”

Joining Forces: Interdisciplinary Science at Novartis

BASEL, SWITZERLAND—“I’d rather hire a good scientist with excellent communication skills than a Nobel Prize winner who can’t talk to anybody.” Paul Herrling, head of research at Novartis Pharma, is speaking of the need

for good communication skills in industry. “It’s extremely important to be able to work in large multidisciplinary teams,” he says. “That’s not always understood among the employee pool. But even in academia now, leading-edge groups are going in that direction. In many big labs, you see molecular biologists joining forces with pharmacologists and biochemists, much as they do here.”

Herrling sees the traditional divide between academic and industrial science beginning to disappear in Europe, though that divide has persisted far longer than in the United States. “Here in Switzerland, it has never existed because we have so many huge companies per capita, so to speak,” he says. “But in other countries, industry was thought to be for misfits. That’s changing rapidly now because of the simple fact that interactions between academia and industry are increasing. Mutual respect now exists, I think; people know you can do excellent research in both sectors.”

Biopharma has undergone some flips and flops in the last two decades. Once very much chemistry-driven, European pharmaceutical companies found their most promising leads increasingly coming from the explosion in biology, leading to the so-called “chemists’ crisis,” in which chemists were thought to be losing prestige in industry. Now, with the advent of combinatorial chemistry, once again there has been a realignment. “Excellent chemistry is of course essential,” Herrling says. “And molecular biologists and geneticists who have bioinformatics skills are of the essence. If there is one candidate who will be gobbled up immediately today, it is the person with experience (or an excellent degree) in bioinformatics.”

Computer scientists have a new importance, especially those with expertise in databank mining. “We need the computer people who can work alongside chemists and biologists,” Herrling says.

While job-seekers know about the excitement over informatics and gene therapy (“still very much alive,” says Herrling), they know less about other opportunities for those with science degrees: marketing, financial analysis, process development, project management, licensing, and communications. “A solid science education could lead you in any one of these directions,” Herrling says.

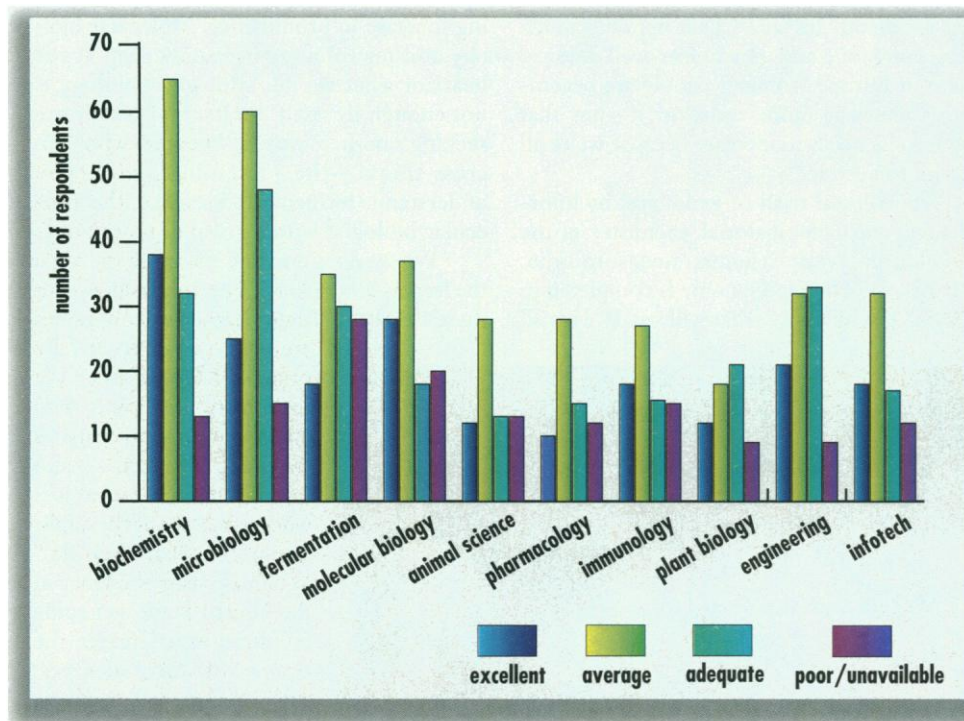
No matter what direction you choose, teamwork and cross-disciplinary science are the keys. “I love watching a biologist who comes here, works with a scientist he or she might never have met—say, sitting down with a chemist to discuss structure-activity rela-

Update on Europe

A few comments and observations from European experts who have appeared recently in these pages.

Michel De Wilde, president of research and development for SmithKline Biologicals in Belgium, reports that “in terms of employment, we’ve continued trying to apply the principals we discussed last time” [see *Science*, Sept. 13, 1996: 1590-1596]. Genomics, vaccinology, immunology, bioinformatics, and process development continue to be areas of need. De Wilde stresses the crucial importance of people skills and networking for the job-seeking scientist ... Jan-Eric Sundgren, professor of physics at Linköping University and secretary general for the Swedish Research Council for Engineering Sciences (TFR),

says there is a great deal of excitement over Sweden’s national effort to create an inter-campus biomedical education program [see *Science*, Sept. 13, 1996: 1590-1596]. As biotech funding increases nationwide, TFR is reviewing its own funding patterns for 1997-98. “Information technology is our biggest single focus at the moment,” Sundgren says, “but we will see an increasing trend in the direction of biotech before long.” Sundgren is especially enthusiastic about the intersection between materials science, and biotechnology. “You’re hearing a lot about gallium nitride, blue lasers, and nanostructure physics, as well as new trends in biosensors and especially in biomaterials, including self-condensed materials, polymers, and artificial tissues,” he says. “Life sciences and materials technology are working more and more closely together.”



tionships—and finds out they really like it,” Herrling says. “To be constantly confronted with all these new aspects of science—that’s what kept me in the industry over the years.”

As Europe Opens Up: Vincent Tuckwood of Pfizer

SANDWICH, ENGLAND—“The UK is the place to be.” So says Vincent Tuckwood, personnel advisor in the discovery groups at Pfizer’s European Research Headquarters.

The UK pharmaceutical industry has undergone something of a consolidation in recent years. Now research and science hiring are on the upswing in the UK.

Hiring in what areas? “From Pfizer’s viewpoint, it’s across the board at the moment,” Tuckwood says. “Hiring in synthetic organic chemistry is a focus at present, and that’s true across the industry, which has seen a biology buildup in the last three years. Even with that buildup, there’s continuing demand for biochemists and molecular biologists. There are also more specialist disciplines emerging, such as protein crystallography.” The much-reported demise of the pharmacologist has not occurred—in fact, as new technologies such as combinatorial chemistry deliver new compounds, pharmacologists will be valued in being able to formulate and test them.

“The major things are that you love science

and that you can stay flexible,” Tuckwood says. “We need people who can move from project to project and between therapeutic areas.”

Europe is opening up, and with it a talent pool both wide and deep. “Management skills seem to be quite portable across borders,” Tuckwood says, “and good science is, too—though we’re wrestling with the issue of how to assess degrees from very different university systems.” One less common skill is intercultural communications. “Not many people can move comfortably from culture to culture,” Tuckwood says, “and I think we, like many companies across Europe, are encouraging people to gain cross-cultural experience as part of their training.” Companies are beginning to expand their internship and exchange offerings; this could be compared to the comparatively open American system. “I think you’ll see both industrial and academic exchange programs growing in the future,” Tuckwood says.

Recent studies suggest that more students want to do their exchange work in the UK than anywhere else in Europe, reinforcing the feeling that the UK is the place to be. “For our part,” Tuckwood says, “we demand single-minded people incredibly motivated to science, people who will ask that extra question no one else has asked. The better they know us, and the better they know what they want out of their science careers, the better for all involved.”

Mixing and Matching Skills at Glaxo Wellcome

PLAN-LES-OUATES, SWITZERLAND—The Geneva Biomedical Research Institute (GBRI), part of Glaxo Wellcome Research and Development SA, is a truly international effort. “We have people from all over Europe and all over the world here,” says John DeLamarter, associate director of GBRI. “Swiss scientists are actually a minority, though a significant number.” No matter where they are from, the scientists at GBRI are peering intently into the future.

Bioinformatics and the computational biologies are much of the moment. “We’re very interested in the application of artificial intelligence to questions of analysis, from understanding nucleotide sequences on up,” he says. “Everyone knows that the amount of information being generated exceeds the capacity of individual scientists or individual labs. We therefore need the kind of people who can create this computational interface.”

In Europe, bioinformatics has broken in three waves: biochemists who employed computational expertise to expand their dealings with protein structure, artificial intelligence experts who saw new frontiers in biology, and now, scientists (largely biochemists) trained in universities. “I’m convinced that within five years, PhD-level life scientists will carry bioinformatics skills as a standard part of their education,” DeLamarter says. “It simply has to happen.”

Geneticists in general, and statistical geneticists in particular, are in high demand. “The application of genetics to pharmaceutical research is likely to have a major impact on the medicines of the future and indeed the way health care is organized and delivered,” DeLamarter says. “It will remain a hot topic for the next five years, and students may wish to think about training in genetics for a future career in research in the pharmaceutical industry.”

DeLamarter also believes that the 1990s is the decade of the brain. “We still are missing the right kind of neurobiologist,” he says, “the integrative kind who can handle different skills, from bioinformatics to molecular biology to physiology, in addressing questions about the organization and function of the brain. Such people will make the big breakthroughs in the next decade.”

In all scientific areas, the ability to “mix and match skills,” as DeLamarter puts it, is transforming science. At GBRI, eighteen different nationalities are represented, with many different ways of approaching a problem. Yet all these

scientists have international research experience and subject their work to an international standard. "So you have unity in diversity," he says, "and that's the direction of future science, whether in Europe or elsewhere."

The Search for the Global Scientist at Roche

BASEL, SWITZERLAND—"There are good people all over the world, and we're looking for them," says Professor Albert Fischli of the pharmaceutical research department at Roche and the Roche Research Foundation. Besides all the diverse scientific and technical desiderata in the global scientist's profile, Roche looks for a broad understanding of the entire process used to bring a drug to the customer. "In the case of pharmaceuticals," Fischli says, "we need talented people who can see the process all the way through, from bench to bedside."

That calls for the familiar depth-plus-breadth formula: excellence in one science and familiarity with the sister disciplines. "On top of that, scientists should have a good knowledge of medicine," Fischli says.

Where is he finding such people? "Well, the US is doing a tremendous job in fostering such awareness in its graduates," he says, "but it's also possible in Europe." There are quite a few European universities turning out graduates with global awareness.

Fischli believes that many job-seekers with science degrees are unaware of the full range of jobs available in industry. He points to a trend he wants to encourage: the scientific degree happily married to an MBA. "It's more common in the US and is slowly growing in Europe," he says. "It can make a big difference if your general manager is an MD who has an MBA and thus can speak with both his medical clients and his business clients in their own language."

Efforts are underway across Europe to encourage such cross-functionality. Institutions such as INSEAD in Paris, France; the London Business School; and IMD in Lausanne, Switzerland, are offering full-time MBA courses. On its centennial in 1996, Roche launched a foundation to encourage medical or science graduates who were company employees or residents of Switzerland to get MBAs. Ten business schools throughout Europe and the United States have joined in the effort.

In regard to candidates for employment in pharmaceutical research, Fischli speaks of the United States as the trend-setter. "The MD/PhD programs in American universities

are excellent," he says. "That option is much less common, and much less well known, here in Europe. Younger people are becoming somewhat more aware of it—but that awareness needs to increase because we're all going to need it."

The colossal triad of genomics, bioinformatics, and combinatorial chemistry is the revolution every scientist needs to join. "When the Human Genome is completed in 2005," Fischli asks, "what will we do with all



Collaborative Science: Andrea Pfeifer of Nestlé

Nestlé LTD

that information? Nothing, unless we are well-versed in molecular biology, can converse in bioinformatics, and can use combinatorial chemistry to translate knowledge at the molecular level into products."

The Flavor of Biotechnology at Nestlé

LAUSANNE, SWITZERLAND—Who says biotechnology is only for drug development? At the Nestlé Research Center, the new biologics have arrived, with applications in flavor research, nutrition, and process development.

Do job-seekers know about it? Not necessarily. Andrea Pfeifer, head of the department of life sciences, says, "The impact of biotech has been as significant for our area as anywhere else in industry. We're looking at molecular interactions in the flavor area and molecular mechanisms in nutrition—mineral absorption on the molecular level, for example. Along with our continuing need for nutritionists, we need people in fermentation technology. Information science is becoming increasingly important, as bioinformatics, molecular modeling, and computer model-

ing increase in prominence. Molecular biology and microbiology are now deep at the heart of what we do." But microbiology is not enough by itself. Pfeifer and Nestlé are seeking, in her words, "people who can cross-think"—the microbiologist who understands fermentation science, the molecular biologist with a grasp of physiology.

Where does one find the cross-thinkers, the leapers and linkers? The universities—but there's a catch. "Many European universities are still too theoretically oriented," Pfeifer says. "We have many applicants who come out of university as excellent specialists—and find themselves at a loss when asked about the applications of what they do." Whereas many students in the United States get some industrial experience in the course of their degrees, such experience remains less common in Europe.

"Luckily, things are beginning to change in this regard, and universities increasingly are coming to us and asking, 'What do you want?'" Pfeifer says. "Still, there remains this old prejudice about industry being second-class science, somehow not legitimate. That, too, is changing." Pfeifer also puts a premium on communication skills, including the ability to speak more than one language. ("Often, I'll start an interview in the applicant's home language and then switch to English," she says.) Her "perfect" candidate would have an excellent degree, a postdoc in America, research experience in at least two cultures, language skills, and computer skills.

Nestlé also has a continuing commitment to basic applied and product-development research. "We have to have it both ways," Pfeifer says. "Without an ongoing long-term research effort with established methodologies and techniques, we can't get the most out of the science we do. We're quite proud of our clinical nutrition department, with hundreds of studies going on around the world."

But for most of the new applicants Pfeifer sees, a mind that combines the basic and the applied is a must. "After all," she says, "wherever we go, we are sellers of research. That takes a special kind of person." ■

THE ROCHE

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AND SCIENCE

GRADUATES

Further information and application details can be obtained from:

Roche MBA Fellowship Programme
c/o Roche Research Foundation
CH-4070 Basel, Switzerland

Tel.: +41-61-688 21 82
Fax: +41-61-688 14 60
Internet: research.foundation@roche.com



**GLOBAL
CHANGE**

EXECUTIVE DIRECTOR OF THE INTERNATIONAL GEOSPHERE-BIOSPHERE PROGRAMME (IGBP)



The International Council of Scientific Unions (ICSU) invites applications for the position of Executive Director of the International Geosphere-Biosphere Programme. The IGBP is an international research programme, organised under the aegis of ICSU, dealing with the causes and effects of global environmental change. There are currently 75 IGBP National Committees and the national research expenditure for component parts of the programme is estimated to be ca. US \$500 million annually. The IGBP, together with the World Climate Research Programme (WCRP) and the International Human Dimensions of Global Environmental Change Programme (IHDP), provide the focused international scientific effort needed to address the uncertainties relating to natural and man-made global changes.

Under the direction of the Scientific Committee for the IGBP (SC-IGBP) and its Officers, the Executive Director is responsible for guiding the development and implementation of the programme. In particular, the Executive Director will:

- facilitate achievement of IGBP's mandate by the international scientific community
- work with the IGBP programme elements to achieve maximum scientific and organisational integration
- ensure effective links between IGBP and other relevant research programmes, especially IHDP and WCRP, as well as maintain strong links with the international policy community and funding agencies.
- represent the Programme and present its results internationally
- supervise the scientific, administrative, and financial staff of the Secretariat (8-10 persons)

The successful candidate will:

- have a distinguished international research reputation in a relevant natural science discipline
- be knowledgeable about the international global change research effort
- have experience of international scientific collaboration including both governmental and non-governmental organisations
- be prepared to conduct extensive worldwide travel
- possess a full command of written and spoken English; knowledge of other languages is an advantage.

The Executive Director, appointed by ICSU for a 3-year period, renewable, will be an employee of the Royal Swedish Academy of Sciences in Stockholm, where the IGBP Secretariat is located. The position should be filled towards the end of 1997, or as soon as possible thereafter. The salary is negotiable and will take due account of the experience and qualifications of the candidate and the costs and benefits of living in Stockholm. The present vacancy arises from the return of the current Executive Director (Professor Chris Rapley) to his position at University College London, following a 3-year leave of absence.

Letters of application with a curriculum vitae and the names of three referees should be received no later than 4 April 1997 by the **Executive Director of ICSU, 51 boulevard de Montmorency, F-75016 Paris 16, France, Fax +33 1 4288 9431**. Interviews for the post will be held on 11 June 1997 in Stockholm. Further information on the IGBP and its Secretariat can be provided by either **Professor Peter S. Liss, Chairman SC-IGBP, Tel +44 1603 592563, Fax +44 1603 507719, email <p.liss@uea.ac.uk>** or **Professor Chris Rapley at the Secretariat, Tel +46 8 166448, Fax +46 8 166405, email <cgr@igbp.kva.se>**.

NOTTINGHAM TRENT UNIVERSITY Faculty of Science and Mathematics Masters and Ph.D. Programs



The Faculty has a comprehensive infrastructure to support Masters and Ph.D. programs with well equipped modern laboratories situated on the outskirts of Nottingham, East Midlands, UK. Full time Masters course involving taught modules and a research dissertation are offered in:

MSc in Biotechnology/European Biotechnology
MSc in Integrated Environmental Control
MA/MSc in Quality Management and Improvement
MSc in Biomedical Sciences (planned for 1998)

Research programs leading to a Ph.D. exist in a variety of areas in chemistry, material sciences, biological sciences, biomedical sciences, statistics, quality management, and applied mathematics. Supporting courses are offered in a number of modules including research methodology and communication skills.

Further Inquiries:

Professor M. Griffin
Faculty of Science and Mathematics
Tel: 0115 948 6670
Fax: 0115 948 6636
E-mail: mg@euler.ntu.ac.uk

The University of Reading Professorship in the School of Plant Sciences



Applications are invited for an established Professorship in the School of Plant Sciences tenable in the Department of Botany.

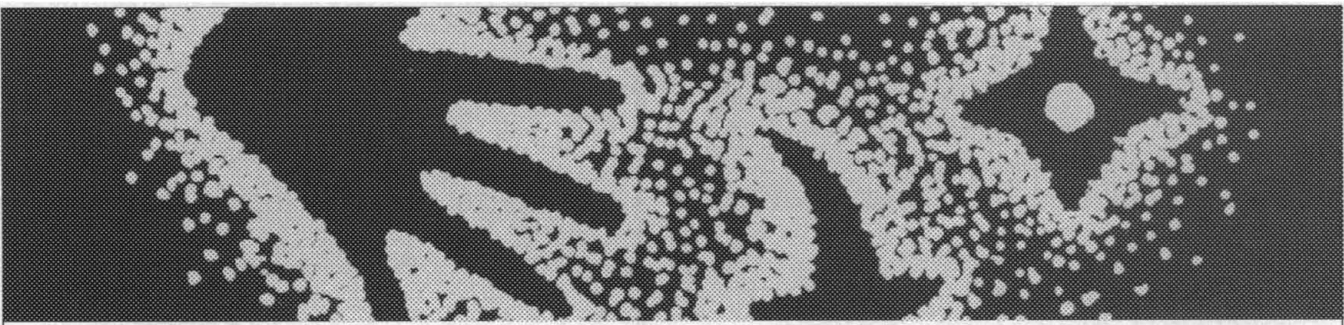
Candidates should have an established international reputation in research and will be expected to provide intellectual and academic leadership in both research and teaching in the Department of Botany and the School of Plant Sciences. As well as stimulating research in his or her own field, the successful candidate will be encouraged to initiate collaborative work with other members of the School and with colleagues elsewhere in the Faculties of Science and of Agriculture and Food, and across the University as a whole.

Applications from candidates with research expertise in any area of Botany will be welcome. Those candidates with an interest in promoting the fields of Plant Taxonomy and Biodiversity are encouraged.

Further information on the Professorship may be obtained from:-

The Registrar, Room 214, Whiteknights House,
P.O. Box 217, The University of Reading,
Whiteknights, Reading RG6 6AH,
telephone: (0118) 931 8114, fax: (0118) 987 4722,
e-mail: r.t.bayer@reading.ac.uk

The closing date for applications is 5 March 1997.



Pharmacia & Upjohn is among the world's largest pharmaceutical companies employing over 30,000 people around the globe. We are research-based and pharmaceutically orientated working in areas such as Oncology and Infectious, Metabolic, Inflammatory and Central Nervous System Diseases. In each of these areas our objective is the same: to help people live longer and fuller lives. We provide career opportunities for individuals who want to make a difference in their job and for the millions of people who rely on our products worldwide. If you're one of them, contact us.

Three postdoctoral positions, each for a period of two years, are available at Pharmacia & Upjohn, PPC Sweden Research in Stockholm, Sweden:

Postdoctoral Opportunities

“Signal Transduction by Nuclear Hormone Receptors”.

Dr. Anders Berkenstam, anders.berkenstam@eu.pnu.com

A postdoctoral position is available at the Department of Cell Biology to study basic mechanisms in signal transduction mediated by nuclear hormone receptors. Applicants should have a strong general background in molecular and cellular biology with research experience in the fields of nuclear hormone receptors, transcription factors and preferentially also regulation of intermediary metabolism.

“Biochemical and Structural Characterisation of the Human Growth Hormone Receptor Intracellular Domain - JAK2 Interaction”.

Dr. Michael Sundström, michael.sundstrom@eu.pnu.com

Dr. Gunnar Norstedt, gunnar.norstedt@eu.pnu.com

A postdoctoral position is available at the Department of Structural Chemistry to biochemically and structurally study the interaction between the human growth hormone receptor intracellular domain - JAK2 kinase. Research experience in the areas of 3D structure determination using protein crystallographical methods and protein interaction analysis using biochemical and biophysical methods are required.

“New Methods for the Study of Protein-Protein and Protein-Ligand Interactions and Drug Screening by NMR methods, Including Measurement of Translational Diffusion Coefficients”.

Dr. Per Kraulis, per.kraulis@eu.pnu.com

Dr. Thomas Wehler, thomas.wehler@eu.pnu.com

A postdoctoral position is available at the Department of Structural Chemistry to design and implement new methods for the study of protein-protein and protein-ligand interactions and screening of potential drugs. The novel methods include measurement of translational diffusion coefficients. Experience with biomolecular multidimensional NMR, involving development of novel experiments, is required. State-of-the-art equipment (800 MHz and other spectrometers) will be available.

Candidates should send a brief description of research experience, curriculum vitae including list of publications, copies of relevant publications and names of three references by February 28 1997 to Lotta Hansing, Pharmacia & Upjohn AB, 112 87 S-Stockholm.



**Pharmacia
& Upjohn**

COURSES & TRAINING



Imperial College of Science, Technology & Medicine School of Medicine at St Mary's University of London

Medical and Community Genetics

Master of Science Course in Human Molecular Genetics

October 1997

Imperial College School of Medicine offers a full-time, one year MSc course in Human Molecular Genetics. The course is based in the Academic Unit of Medical and Community Genetics, a research unit within a busy regional clinical genetics department located in Harrow. The course provides a thorough grounding in Human Genetics, with emphasis on Molecular Genetics. Topics covered include molecular genetic approaches, cytogenetics, polygenic disease, computing and analysis, population and evolutionary genetics, computing and quantitative genetics, introductions to counselling skills, animal models, transgenesis, viral, microbial and drosophila genetics, mutagenesis and cancer genetics. Three months will be spent on a major research project. Most successful candidates will be science graduates but clinicians and those with other qualifying backgrounds may be considered. Some part-time places may be available. Financial support may become available for a limited number of places.

Master of Science Course in Molecular Genetics with Counselling

We hope to offer this new course in November 1997.

All enquires for both courses to Mrs. Pauline Woodhead, Imperial College School of Medicine, Medical and Community Genetics, Level 8V, Northwick Park and St. Marks NHS Trust, Watford Road, Harrow HA1 3UJ. Telephone no. 0181 869 3164.

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ANNOUNCEMENT

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Research Excellence Fellowships are available for outstanding students to pursue graduate training in agricultural and biological sciences. The fellowships provide \$5,000 yearly supplements to standard departmental stipends for four years; stipends in the first year range from \$17,240 to \$20,000.

Animal Science (Miller Excellence Fellowship in Animal Sciences)

Biochemistry & Biophysics (Robert Scott Allen Excellence Fellowship)

Food Science & Human Nutrition (Miller Graduate Fellowship)

Forestry (Sande McNabb Excellence Fellowship)

Microbiology, Immunology & Preventive Medicine (Hartman Fellowship)

Plant Pathology (J. Artie Browning Graduate Fellowship)

Zoology & Genetics (Fung Excellence Fellowship)

For more information about graduate research opportunities in these departments, write to Graduate Fellowship Coordinator, 124 Curtiss Hall, Iowa State University, Ames, IA 50011, or visit the departmental WWW sites at <http://www.iastate.edu>.

GLOBAL CAREER OPPORTUNITIES



SECRETARIAT OF THE CONVENTION ON WETLANDS SENIOR COORDINATOR, POLICY AND TECHNICAL AFFAIRS Gland, Switzerland

The Convention on Wetlands has a vacancy as of 15 September 1997 for its second most senior position. The principal responsibilities of the post are to provide advice and assistance to the Secretary General and Regional Coordinators on policy, technical, and scientific issues related to the implementation of the Convention.

Requirements:

- university degree or demonstrated knowledge in at least one subject relevant to wetland conservation and sustainable use (e.g. geography, biology, hydrology, marine sciences, natural resources management, land-use planning)
- extensive work experience in nature conservation and/or sustainable use issues
- minimum 3 years of work experience in a senior position
- computer literacy
- excellent English (preferably with a knowledge of French and/or Spanish).

Applications:

Potential applicants should access the full vacancy announcement at Ramsar Web site: <http://iucn.org/themes/ramsar/> (under "What's new"); or obtain a copy by contacting: **Julia Tucker, Ramsar Convention Bureau**, tel: 41-22-999.01.70; fax: 41-22-999.01.69; email: jet@hq.iucn.org

Director, Max-Planck-Institut für Astronomie

The Max-Planck-Institut für Astronomie invites applications for the position of Director at the institute to be appointed following the retirement of Prof. Hans Elsässer in April 1997. Directors positions within the Max-Planck-Society focus on scientific leadership and research; administrative duties are minimised by rotating the management responsibilities between different directors at the institute. The MPIA has approximately 180 staff, student, and visiting positions and an annual budget of more than 20 million Marks. The MPIA runs the Calar Alto observatory in southern Spain with 3.5, 2.2, 1.2m and Schmidt telescopes and uses a substantial fraction of the observing time. It has a major role in the VLT project at ESO including VLTI, it runs a data center for ISO, and it expects to become a partner in the LBT project early in 1997. Candidates must have an outstanding international record of research in astronomy and demonstrated leadership ability. Astronomers or physicists with a strong interest in extragalactic research are preferred, although all fields of astronomical research will be considered. Applications should include a vita, list of publications, and a cover letter outlining the current research goals of the candidate as they would be carried out with the resources of the institute. Applications should be sent by April 1, 1997, to:

Prof. Steven Beckwith
Max-Planck-Institut für Astronomie
Königstuhl 17
69117 Heidelberg
GERMANY

Further information may be found on the website: <http://www.mpia-hd.mpg.de>



**UNIVERSITY
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Lectureship in History of Science

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Applications are invited for the above post for candidates suitably qualified in the History of Science with expertise covering ancient science through the 18th century. The candidate is expected to have teaching and research potential to fit into the Department's undergraduate and graduate programmes.

Completed applications should include a full CV, a description of research interests and sample publications.

Enquiries and applications to: **Professor A.I. Miller, Department of Science & Technology Studies, University College London, Gower Street, London WC1E 6BT, UK.** (Tel: +44 171 391-1321; Fax: +44 171 916-2425; email: a.miller@ucl.ac.uk). We expect to fill this position in September 1997. Closing date: 24th February 1997.

Working towards Equal Opportunity



Max-Planck-Institute

of Chemical Ecology in Jena, Germany

The new Max-Planck-Institute of Chemical Ecology in Jena, Germany will focus on interdisciplinary studies of chemical interactions among plants and their herbivores and pathogens, emphasizing the functional basis of evolutionary forces shaping chemical ecology. Four departments (Organic Chemistry, Biochemistry, Molecular Ecology, and Molecular Evolution) will hire fifty

Scientists and Postdoctoral Researchers

in the next few years. The Institute will have state-of-the-art facilities and a stimulating environment for research in the emerging discipline of chemical ecology. It will be international in character, with English being the official language. Jena is an old university town of 100,000 people in the federal state of Thuringia, a culturally rich region with extensive forest located midway between Berlin and Munich. It is the site of Friedrich Schiller University and several scientific institutes that maintain active research programs in biology, molecular biology, and chemistry.

Applications are invited from both German and non-German nationals. Several postdoctoral positions are available immediately, with remaining positions to be filled beginning in the summer of 1997. Salary levels are in accord with German Federal Law. Successful applicants will have the opportunity to make important empirical and conceptual contributions to the founding of the new research institute. Please send curriculum vitae, list of publications, names of three references, and a brief description of research interests to the director of the department you would prefer to affiliate with.

Organic Chemistry: Prof. Wilhelm Boland, Institut für Organische Chemie-und Biochemie der Universität Bonn, Gerhard-Domagk-Str. 1, D-53121 Bonn, Germany.

Biochemistry: Prof. Jonathan Gershenzon, Institute of Biological Chemistry, Washington State University, Pullman, WA 99164-6340, USA.

Molecular Ecology: Prof. Ian Baldwin, Department of Biological Sciences, State University of New York at Buffalo, Buffalo, NY 14260-1300, USA.

Molecular Genetics and Evolution: Prof. Thomas Mitchell-Olds, Division of Biological Sciences, University of Montana, Missoula, MT 59812, USA.

Request for Proposals from International Spinal Research Trust

The ISRT is a grant giving charity (number 281325) with the purpose of funding research aimed at resolving the non or partial functioning of the injured spinal cord. The field of spinal cord repair has developed to the stage at which we now have demonstrable regeneration of damaged nerve fibers in the adult mammalian cord. Accordingly we feel that we have sufficient knowledge to plan a research strategy which will guarantee genuine progress. To proceed further it is recommended that ISRT funding be restricted to projects that are conducted in adult mammalian spinal cord and concentrated on **3 main research foci**:

- **early trauma and inflammation:** prevention of the generation of obstacles to future regenerative repair, including aspects of scarring
- **trophic stimulation of neurite outgrowth:** identification of the pattern and possible temporal cascade of the different factors required to achieve long-distance regeneration
- **CNS inhibitory molecules:** masking of intrinsic mechanisms that are inhibitory to axonal regrowth in the CNS

Besides these three main foci, ISRT will, in due course, support a complementary program to address the hurdles that prevent a proper evaluation of the progress made on each project.

The Trust does not, at this time, have the resources to begin every aspect of this three year program. Accordingly applications are invited for projects in the areas of

- **the functional capacity of surviving fibers after spinal cord injury, including collateral sprouting and supply to denervated effector tissues**
- **methods for enhancing residual function**
- **approaches to using residual fibers to promote or direct regeneration**

Applicants should submit five copies of a letter of intent (c. two sides) summarizing the proposed research and background of the laboratory. Five copies of an approximate budget and curriculum vitae of the Principal Investigator(s) should be appended. All letters should arrive by first post on March 3, 1997. No faxed or electronic letters of intent will be accepted. Awards will average up to £250,000 over three years and, following a preliminary review, detailed proposals will be requested from a limited number of applicants. Address letters of intent to: **The International Spinal Research Trust, Unit 7 Bramley Business Centre, Station Road, Bramley, Guildford, Surrey GU5 0AZ. E-mail isrt@dial.pipex.com**

Monsanto European Crop Research Center

Monsanto, world leader in the application of biotechnology to crop improvement, is expanding our European Crop Research Center located in Louvain-La-Neuve, Belgium, thirty kilometers from Brussels, and invites top quality scientists to join our teams in discovering and developing products for sustainable production of crops, food, and fiber to feed and clothe the world's peoples in the twenty first century.

Core Technology: Transformation Transformation Project Leader

The candidate should have a Ph.D. in the area of cell biology, botany, genetics, physiology, agronomy, or biochemistry and several years experience directing programs and managing scientists involved in plant tissue culture and production of transformed plants by both particle bombardment and Agrobacterium. Commercial production scale and cereal experience a plus.

Cereal Technology: Molecular/Marker Assisted Breeding Molecular Breeding Specialist

The candidate should have a Ph.D. in plant breeding and practical experience in quantitative and marker assisted breeding to work closely with breeders in our hybrid wheat company, Hybritech, applying these tools to develop new parents and hybrid varieties.

Crop Improvement Technology: Identification/Utilization Technology Access Specialist

The candidate should have a Ph.D. in plant biology and broad interests in the area of agricultural biotechnology. Curiosity, love of science, interactive skills and multiple, strong language abilities will allow the discovery of areas of common interest with scientists located in laboratories throughout Western and Eastern Europe, the Middle East and Africa. Ability to travel is essential.

Crop Improvement Technology: Disease Resistance or Yield Enhancement

Disease or Yield Research Project Leader

The candidate should have a Ph.D. in plant pathology or physiology and a record of research into molecular approaches to disease resistance or yield enhancement. The candidate will continue to lead his/her own program and also manage interactions with collaborators in his/her field.

Crop Improvement Technology: Gene Expression Molecular Biology Research Associate

The candidate should have a Masters degree in molecular/biological/chemical Sciences or equivalent and experience in applying recombinant DNA techniques and molecular biology to analyze plant gene expression.

For all candidates, strong people interaction skills coupled with ability and willingness to participate in a team organized, global research environment are a must. Computer skills: word processing, e-mail and Internet are assumed. European Crop Research Center scientists are from many nations and cultures and our working language is English. Please send your curriculum vitae, the names of three references, and copies of recent publications. Please indicate the position for which you believe you are qualified when you send your reply by March 1, 1997 to **Steve Rogers, Director Biotechnology Projects, MONSANTO European Crop Research Center, Department S, Rue Laid Burniat, Parc Scientifique, B-1348 Louvain-La-Neuve, Belgium.**

THE WORLD DEPENDS ON THE

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Of Our Scientists.

It takes world-class employees to make a world-class company.

We are currently recruiting scientists to join a newly formed Drug Discovery project team at Abbott. We believe that recent advances in the insulin action field have revealed important new molecular targets that may lead to development of novel therapeutic agents for treatment of non-insulin dependent diabetes. This new group will have significant interactions with key advanced technology groups at Abbott including genomics, structural biology, combinatorial chemistry, and high throughput screening. We are looking for several individuals who could join the program at the Postdoctoral or Sr. Scientist level, and an additional person who has the experience and ability to provide program leadership. Abbott's Project Team approach to drug discovery provides an exciting, highly collaborative environment that has proven to be rewarding and effective

POSTDOCTORAL OR SR. SCIENTISTS

The ideal candidates will have a PhD and/or MD with research experience (0-8 yr post-doctoral) in the general field of molecular and/or biochemical aspects of hormone action. Bench expertise related to tyrosine kinase receptors, signal transduction, vesicle trafficking, and/or glucose transporter function is preferred. Excellent critical thinking, interpersonal, and verbal and written communication skills are essential. (Job #96-LAM-3221)

BIOLOGY GROUP LEADER

The ideal candidate will have a PhD and/or MD with significant research experience (at least 6 yr post-doctoral) relating to the biochemical aspects of insulin action. Preference will be given to those candidates that are active in research directed at understanding the fundamental mechanisms of insulin resistance. Industry experience is desirable. Demonstration of high quality research in this field will be essential. Critical thinking, interpersonal, verbal and written communication skills, and demonstrated leadership ability must be apparent. The selected candidate will be expected to provide program leadership consistent with establishing Abbott as a leader in the diabetes research field. (Job # 96-JKK-3220)

With 50,000 employees worldwide, and more than \$10 billion in annual sales, we've established ourselves as a respected global business and innovative leader in the changing health care industry. For consideration, please send your c.v. to: **Abbott Laboratories, Job # (please specify), D583, AP6B, 200 Abbott Park Rd., Abbott Park, IL 60064.** Abbott is an Affirmative Action Employer/Smoke-Free Environment.

**ABBOTT
LABORATORIES**
Quality Health Care Worldwide

OPPORTUNITIES IN R&D DISCOVERY

At SmithKline Beecham, our commitment to scientific excellence results in products that promote health and well-being throughout the world. Because innovative research is critical to our ability to deliver new healthcare solutions, we are seeking gifted and focused scientists who are dedicated to discovery.

Molecular Diagnostics

Assistant Director

The Molecular Diagnostics Department is seeking an accomplished scientist with broad experience in the diagnostic industry, coupled with strong leadership capabilities. Qualified individuals will possess a PhD in Biochemistry or related area with at least 7 years' experience in diagnostic R&D. A successful record of performance in leading teams as well as establishing and managing the execution of research plans is also necessary. Desired research background should include both immunoassay and PCR assay development, knowledge of monoclonal antibody production, and experience with clinical trials to validate diagnostics tests. Candidates must be committed, strategic thinkers with excellent presentation and communication skills. Refer to Job Code D7-0043.

Scientists

Several opportunities exist within the Molecular Diagnostics Department for scientists with an MS in Biochemistry, Molecular Biology or related field, plus 2-3 years' experience in the areas described below. Refer to Job Code D7-0440 for any of these positions.

Molecular Biology: cDNA library construction, cDNA library screening, DNA sequencing and PCR. **Gene Expression:** subcloning, bacterial and baculovirus expression, cell culture and familiarity with protein purification. **Protein Biochemistry:** protein purification, gel electrophoresis, Western blot, protein chemical modification, and ELISA. **Immunoassay Development:** ELISA development and optimization, Western blot, antibody purification, and conjugation, and basic protein biochemistry.

Molecular Genetics

Postdoctoral Scientist

Responsibilities for this position include discovering new genes involved in hematopoietic development and differentiation using the latest technologies including PCR-based cDNA library construction and subtraction. A focus will be placed on obtaining secreted molecules using various methodologies and interacting with Bioinformatics for analysis of novel gene sequences. Requirements include a strong background in molecular biology; and a willingness to work in multidisciplinary teams to characterize newly discovered genes. Interest in hematopoiesis or cytokine biology is desirable. Candidates must have a PhD with up to 2 years' postdoctoral experience. Refer to Job Code D7-0069.

Located in a state-of-the-art research facility in suburban Philadelphia, SmithKline Beecham offers a competitive compensation/benefits/relocation package and a stimulating work environment. For confidential consideration, please send resume and salary requirements, indicating desired Job Code, to: SmithKline Beecham Pharmaceuticals, Job Code _____, P.O. Box 2645, Bala Cynwyd, PA 19004. For more information on SmithKline Beecham, visit our Website at <http://www.sb.com>. We are an Equal Opportunity Employer, M/F/D/V.

SB

SmithKline Beecham
Pharmaceuticals

Challenging the natural limits.

Astra Research Center Boston

Astra is a rapidly expanding international leader in pharmaceutical research and development, responsible for creating the #1 selling drug in the world, Prilosec®. With over \$5 billion in sales and more than 16,000 employees worldwide, Astra's mission is to improve human health and the quality of life. Astra Research Center Boston, an integral part of Astra, is initially focusing its research on the development of vaccines and small molecule drugs to improve therapies against *Helicobacter pylori*. Working on a broad range of international collaborations, our excellent scientists exploit *H. pylori* genomic information to identify targets for pharmaceutical and biological intervention. With a long-term commitment to the research and development of novel therapeutics in additional disease targets, we offer you the opportunity to be part of innovative, creative multidisciplinary project teams.



Pursuing knowledge through the power of equal opportunity.

VACCINE RESEARCH AND DEVELOPMENT

Principal Scientist Pharmaceutical Research

The candidate will develop novel protein formulations and delivery systems for vaccine antigens. Evaluate pharmaceutical aspects of vaccine delivery systems. Collaborate in the analysis and characterization of formulations for purified proteins and for vectored vaccines. Develop stability profiles, pharmaceutical packages and other appropriate documentation for regulatory filing and for eventual transfer to development and production groups.

Ph.D. with 5 plus years (beyond postdoctoral) of independent research experience in protein formulation characterization and/or oral delivery as well as directing research required. (Code: 97-04)

Principal Scientist Bioanalytical Research

The candidate will develop the analytical biochemistry of protein antigens and other vaccine components. Responsible for the development and validation of assays for purified proteins, formulated proteins as candidate vaccines, vectored vaccines, and in-process assays. Identify battery of assays as release tests for preclinical and clinical batches of vaccines. Develop appropriate documentation for filing regulatory packages and for eventual transfer to production groups. Assure high quality standards for the program.

Ph.D. with 5 plus years (beyond postdoctoral) independent research experience in protein analysis and assay development and in directing research required. (Code: 97-03)

Principal Scientist Biochemistry

The candidate will develop the methods for purification and characterization of proteins which are candidate vaccine antigens. Research processes for vaccine antigens and for vectored vaccines at the small and intermediate scales. Collaborate in the identification of analytical assays. Develop appropriate documentation for filing regulatory packages and for transfer to process development group. Assure that process meets the needs for initiating clinical testing and for proceeding rapidly through further development.

Ph.D. with 5 plus years (beyond postdoctoral) independent research experience in protein isolation and characterization and in directing research required. (Code: 97-02)

Qualified candidates please send your C.V., indicating appropriate job code, to: Astra Research Center Boston, Human Resources, 128 Sidney Street, Cambridge, MA 02139; FAX (617) 576-4668.

POSITIONS OPEN

ENVIRONMENTAL EPIDEMIOLOGIST

(This is a cooperative agreement between the federal Agency for Toxic Substances and Disease Registry and the Iowa Department of Public Health. This is a 5 year term appointment with the University of Iowa Hygienic Laboratory.)

This position, located within the organizational structure of the Iowa Department of Public Health in Des Moines, Iowa, is responsible for planning, developing, conducting, and evaluating all programmatic and technical aspects of the Toxic Substances Evaluation Program. This person will direct epidemiologic and exposure assessment studies and serve as a state wide medical and public health resource to provide environmental and health related advice to various state and local agencies, health care providers, and general public.

Candidates must have a doctoral degree with emphasis in environmental epidemiology, acute and chronic disease epidemiology, environmental toxicology, biochemistry, or biological chemistry, and three to five years of environmental and/or public health program experience. Must have a thorough understanding of risk assessment and scientific expertise to direct program staff and address citizen concerns. Must have the ability to respond to public relations concerns with integrity and professionalism. Requires solid oral and written communications skills. Some administrative experience and familiarity with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980; the Resource Conservation and Recovery Act as amended in 1984; the Superfund Amendments and Reauthorization Act of 1986; and the roles and responsibilities of the Agency for Toxic Substances and Disease Registry and the Environmental Protection Agency is highly desirable. The salary range is \$46,700 to \$70,000 commensurate with experience plus an excellent fringe benefits package.

Refer curriculum vitae to:

Environmental Epidemiologist Search Committee
University Hygienic Laboratory
102 Oakdale Hall, #H101-OH
Iowa City, IA 52242-5002

The University of Iowa is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply. Application deadline is March 15, 1997.

**CHAIRMAN
 DEPARTMENT OF PHARMACOLOGY
 AND TOXICOLOGY**

The University of Texas Medical Branch (UTMB) at Galveston invites applications and nominations for the position of **CHAIR** of the Department of Pharmacology and Toxicology. UTMB seeks a distinguished scientist with a Ph.D. and/or M.D. degree or equivalent degree, an outstanding record of scientific productivity, a commitment to excellence in teaching both graduate and medical students, and ability to attract external funding. The candidate should also be able to offer scientific and academic leadership to a department covering the broad disciplines of pharmacology and toxicology. Candidates with molecular biological backgrounds are especially encouraged to apply. The position will be at the level of Professor with tenure.

Interested applicants should send detailed curriculum vitae, publication list, research funding information, outline of current and future research interests, and names of three references to: **Luis Reuss, M.D., Chair, Pharmacology and Toxicology Search Committee, Department of Physiology and Biophysics, The University of Texas Medical Branch, 301 University Boulevard, Galveston, TX 77555-0641.** UTMB is an Equal Opportunity/Affirmative Action Employer. Minorities/Females/Disabled/Veterans.

The Department of Polymer Science at the University of Southern Mississippi invites applications for two tenure-track positions at the **ASSISTANT PROFESSOR** level. Successful applicants are expected to develop vigorous research programs and to teach undergraduate and graduate courses in polymer science. Particular consideration will be given to candidates with research interests in the areas of polymer engineering, surface coatings, catalysis, and polymer morphology. Ph.D. degrees in polymer science, chemistry, chemical engineering, or materials science are preferred. Applications will be accepted until the positions are filled. Applicants should submit a curriculum vitae with a statement of research plans, research publications, and a graduate transcript to: **Search Committee, Department of Polymer Science, Box 10076, Hattiesburg, MS 39406-0076.** Affirmative Action/Equal Opportunity Employer/American Disabilities Act Institution.

POSITIONS OPEN

**DIRECTOR
 The Geophysical Laboratory
 Carnegie Institution of Washington**

The Carnegie Institution of Washington seeks a **DIRECTOR** for the Geophysical Laboratory to lead the Department in a multidisciplinary research program in the physical sciences. Applicants should have a record of excellence in research on problems in this general area, as well as advanced leadership and management capabilities. The successful candidate will be expected to carry out an active scientific program while providing general scientific leadership for the staff, which currently includes groups in experimental petrology, mineral physics, high pressure physics and chemistry, organic geochemistry, and isotope geochemistry. While expertise in each of these disciplines is not required, appreciation of a broad approach to problem-oriented research is essential. The **DIRECTOR** of the Geophysical Laboratory sets a standard of scientific excellence for the Department and charts the course for its future development.

The Geophysical Laboratory shares with the Department of Terrestrial Magnetism a new research building (occupied in 1990) on a nine-acre campus in northwestern Washington, D.C. The Laboratory, which consists of 14 staff scientists, including postdoctoral associates and supporting technicians, is well equipped to conduct research and training in all areas of the scholarly program. Supporting funds are derived from the privately endowed Carnegie Institution with additional income from outside sources.

Those persons interested in the position are encouraged to write a letter to the search committee at the address given below. Replies must be received by March 15, 1997. Colleagues with suggestions of names for candidate directors are also encouraged to write.

Dr. Maxine F. Singer, President
Carnegie Institution of Washington
1530 P Street, N.W.
Washington, DC 20005
Equal Opportunity Employer

**ASSISTANT PROFESSOR
 PHARMACEUTICAL SCIENCES**

Applications are invited for an academic year, tenure-track, faculty position at the rank of **ASSISTANT PROFESSOR**. This position is pending final budgetary approval. Applicants must have a Ph.D. in pharmaceutical sciences with an emphasis in medicinal chemistry, biotechnology, drug metabolism, or pharmacokinetics and a strong commitment to teaching at the undergraduate level. Postdoctoral experience is desirable but not required. Preference will be given to applicants possessing an undergraduate degree in pharmacy. Primary responsibilities include instruction to undergraduate (Pharm.D.) pharmacy majors in the above areas and the development of an independent, fundable research program. Applicants should send their curriculum vitae, a brief statement of research interests, and a statement of teaching experience and/or interests to: **Chair, Department of Pharmacy Sciences, College of Pharmacy and Health Sciences, Drake University, Des Moines, IA 50311-4505.** Applicants should also arrange to have three letters of recommendation sent on their behalf directly to the address listed above. Completed applications, including letters of reference, must be received by March 15, 1997 to be assured full consideration. *Drake University is committed to Equal Opportunity through Affirmative Action in employment and is especially eager to identify minority persons and women for this position.*

**FACULTY POSITION IN
 IMMUNOLOGY AND MICROBIOLOGY**

Adelphi University seeks qualified applicants to fill a tenure track position in immunology/microbiology within the Biology Department at the level of **ASSISTANT PROFESSOR**. The position begins September 1, 1997. Candidates must hold a Ph.D. and demonstrate outstanding scholarship and strong record of achievement, and show potential for development of a strong research laboratory using state-of-the-art techniques in the field. Teaching responsibilities will include courses at the undergraduate and graduate (M.S.) levels. Applicants should submit curriculum vitae, bibliography, description of teaching and research goals, and three letters of recommendation to: **Dr. Carol Diakow, Adelphi University, Garden City, NY 11530,** by February 28, 1997. *Equal Opportunity/Affirmative Action Employer, Minorities/Females.*

POSITIONS OPEN

**CHAIRPERSON
 DEPARTMENT OF GENETICS**

Yale University School of Medicine is seeking an outstanding scientist to head the Department of Genetics, which has a long history of excellence in both basic genetic research and clinical genetics. Research interests of the faculty include studies on the structure, function, and expression of cellular and viral genes; human genetics; genetic control of cell growth and differentiation; DNA replication, recombination, and mutagenesis; and developmental genetics in a variety of systems. The Department has a graduate program leading to the Ph.D. degree. It also provides clinical training and clinical genetics services, and operates a number of clinical laboratories. The successful candidate will provide leadership in defining the future direction of the Department and in maintaining the vigor of its research, clinical, and teaching programs.

Applications are to be sent to: **Richard A. Flavell, Ph.D., Genetics Chair Search Committee, c/o Terrill S. Moorehouse, Administrator, Section of Immunobiology, Yale School of Medicine, Room TE404, P.O. Box 208011, New Haven, CT 06520-8011.** Application deadline: April 15, 1997.

Yale University is an Affirmative Action/Equal Opportunity Employer. Women and minority group members are encouraged to apply.

**MONMOUTH UNIVERSITY
 BIOLOGY DEPARTMENT
 INSTRUCTOR POSITION**

The Biology Department of Monmouth University invites applications for a position as **INSTRUCTOR**, to teach introductory biology courses for majors and non-majors and laboratory courses in genetics, microbiology, biochemistry, and/or physiology. The position starts September 1, 1997, and is a one-year appointment, with possible renewal. Commitment to quality in undergraduate teaching is required.

Minimum qualifications are a Ph.D., or equivalent terminal degree, in biology. Preference will be given to candidates with prior teaching experience and broad laboratory training.

Applicants should send a letter of application summarizing teaching qualifications; curriculum vitae; and at least two letters of recommendation to: **Dean Francis C. Lutz, School of Science, Technology and Engineering, Monmouth University, West Long Branch, NJ 07764-1898.** Deadline for receipt of applications is February 21, 1997.

Monmouth University is an Equal Opportunity/Affirmative Action Employer.

SENIOR PROFESSOR, INSTITUTE OF MARINE AND COASTAL SCIENCES AT RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY. SENIOR PROFESSOR with interests in molecular biology and physiology of oceanic photosynthetic processes, remote sensing studies, and global biogeochemical cycles wanted. Experience leading multidisciplinary research teams desirable.

Please send curriculum vitae and research proposal along with three references to: **Dr. J. Frederick Grassle, Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey, P.O. Box 231, New Brunswick, NJ 08903-0231.** Applications are due by March 17, 1997. *Rutgers is an Equal Opportunity/Affirmative Action Employer.*

**FACULTY POSITIONS
 Molecular Cardiology Program
 Columbia University College of
 Physicians and Surgeons**

The Molecular Cardiology Program at Columbia University College of Physicians and Surgeons invites applications for two tenure-track positions at the **ASSISTANT PROFESSOR** level. We are seeking applicants with Ph.D. and/or M.D. degrees and experience in any field of molecular and cellular biology with particular interests in development and cell cycle regulation. Prior experience in cardiovascular systems is not required. The faculty appointments will be held jointly in the Departments of Medicine and Pharmacology.

Applicants should include a curriculum vitae, reprints of publications, a statement of research plans, and three letters of recommendation. This material should be sent to: **Dr. Andrew R. Marks, Director of Molecular Cardiology, Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York, NY 10032.**

Columbia University is an Affirmative Action/Equal Opportunity Employer.



HOLLAND LABORATORY
**MOLECULAR BIOLOGIST
HOLLAND LABORATORY
AMERICAN RED CROSS**

Applications are invited for a Scientist I (Assistant Professor equivalent) position in the Department of Molecular Biology. The successful candidate must demonstrate outstanding potential to develop a vigorous, externally funded research program. Possible areas of interest include, but are not limited to, angiogenesis, hematopoiesis, signal transduction and developmental biology. Preference will be given to applicants who use modern cellular and molecular methods that will complement existing expertise of the department. Applicant should send a curriculum vitae, a brief statement of research interests and the name, address and telephone number of three references to:

Jeffrey A. Winkles, Ph. D.
Chair, Search Committee
Department of Molecular Biology
Holland Laboratory
American Red Cross
15601 Crabbs Branch Way
Rockville, MD 20855

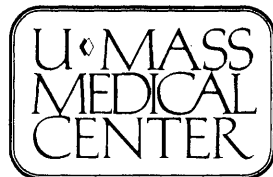
An Equal Opportunity Employer, M/F/D/V

The University of Massachusetts Medical Center includes a 388-bed University Teaching Hospital, Graduate School of Biomedical Sciences and Nursing, and a Medical School with extensive research and clinical science facilities. The Medical Center is currently recruiting for the following:

Faculty Positions in Mammalian Genetics

The University of Massachusetts Medical Center invites applications for **Tenure-Leading Faculty Positions** which are immediately available at all levels. Positions which are associated with a new Howard Hughes interdisciplinary programmatic initiative in mammalian genetics will include an appointment in an academic department as well as a generous multi-year start-up package. Applicants should possess a Ph.D., M.D., or M.D./Ph.D. degree, and should have several years of relevant postdoctoral experience. Successful junior applicants will be expected to develop an extramurally-funded research program, to participate in educational programs in genetics for graduate and medical students, and to contribute to the realization of a center in Mammalian Genetics. More senior applicants should have an established and funded research program. Preferred research areas include rodent or human cancer genetics, developmental genetics, pharmacogenetics, or immunogenetics, although high quality research in any related area will be given consideration.

Applicants should send a curriculum vitae, a one page statement of research interest, names, addresses, phone, and fax numbers of three references to: Dr. Edward Bresnick, Vice Chancellor for Research, University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, MA 01655-0118.



An Equal Opportunity/Affirmative Action Employer.

PENNSTATE



PENN STATE UNIVERSITY FOUR FACULTY POSITIONS (Tenure Track)

Penn State University has made a major commitment to promoting excellence in life sciences research and education through a new, university-wide Life Sciences Consortium, including addition of approximately 50 new faculty. All departments have excellent research facilities augmented by shared technology facilities, and provide competitive startup packages. Applications should include curriculum vitae, list of publications, brief statement of research interests, and three letters of reference on applicant's behalf sent to the individual listed below.

VERTEBRATE DEVELOPMENT

The Department of Biochemistry and Molecular Biology invites applications for a position of ASSISTANT PROFESSOR. We seek a molecular biologist/geneticist to join an expanding group of faculty studying many aspects of gene regulation in a variety of organisms. The candidate's research should address fundamental questions in vertebrate, including mammalian, development at a molecular and cellular level.

Dr. Ross C. Hardison
Department of Biochemistry and Molecular Biology
108 Althouse Laboratory, Box DV-S
Penn State University
University Park, PA 16802

ANIMAL TRANSGENESIS

The Department of Dairy and Animal Science invites applications for a position of ASSOCIATE/FULL PROFESSOR. We seek a molecular biologist with an internationally recognized program in animal transgenic research to join an expanding group of faculty studying the biology of growth, lactation and reproduction of domestic animals. The appointment will have responsibilities of 70% research, 30% resident education.

Dr. Terry D. Etherton
Department of Dairy and Animal Science
324 William L. Henning Building
The Pennsylvania State University
University Park, PA 16802

MOLECULAR IMMUNOLOGY

The Department of Veterinary Science invites applications for a faculty position at the level of ASSISTANT PROFESSOR with interests in molecular biology as related to the discipline of immunology to join an active group of faculty studying the host defense mechanisms associated with various animal diseases. Excellent clinical facilities in our Animal Diagnostic Laboratory are available. The position will have responsibilities of 80% research and 20% resident education.

Dr. C. Channa Reddy
Department of Veterinary Science
115 Henning Building
Penn State University
University Park, PA 16802

MUSCLE MOLECULAR BIOLOGY

The Department of Poultry Science invites applications for a position of ASSISTANT/ ASSOCIATE PROFESSOR. We seek a molecular biologist to join a group of faculty with research programs including skeletal and connective tissue biology. The candidate's research should address important issues in muscle biology at a molecular and cellular level. Responsibilities are 85% research and 15% resident education. Applications for this position require 5 letters of reference and transcripts.

Dr. Regina Vasilatos-Younken
Associate Professor of Poultry Science
203 William L. Henning Building
University Park, PA 16802

Reviews commence 1 March 1997; applications accepted until positions filled. Penn State is an Affirmative Action/Equal Opportunity Employer. Women and Minorities Encouraged to Apply.

POSITIONS OPEN

FACULTY POSITION IN OPTICAL BIOENGINEERING

ASSISTANT PROFESSOR: The University of Texas at Austin Biomedical Engineering Program invites applications for a tenure-track faculty position in the area of optical bioengineering. Biomedical Engineering is a designated thrust area within the UT College of Engineering, and optical bioengineering is an existing area of strength which is targeted for further emphasis. Required qualifications include a doctorate in engineering or a related field with a solid background in biomedical optics, evidence of research accomplishments and potential for developing programs with life science and/or medical colleagues, and an ability to teach and communicate effectively. Preference will be given for experience in laser-tissue interaction, spectroscopy or non-invasive micro- and macro-imaging. Expertise in computational biology or MEMS would match supporting technologies that we emphasize. In addition to establishing an aggressive program of research, the successful candidate will be expected to interact with faculty in the UT College of Natural Sciences in research and teaching activities, to teach undergraduate engineering courses, and to develop and teach a graduate level optical instrumentation course for engineering and biology students. Applicants should send a curriculum vitae, summary of professional goals, statement of teaching interests and philosophy, and the names and contacts of three references to: **Faculty Search Committee, Biomedical Engineering Program, The University of Texas, Austin, TX 78712-1084; Web site: <http://www.ecc.utexas.edu/bme/>.**

The University of Texas at Austin is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR RESEARCH IN NEUROPATHOLOGY

The Department of Pathology of the University of Arkansas College of Medicine invites applications for a **RESEARCH POSITION** in neuropathology. The successful candidate will join an established University/VA research group, currently supported by two NIA program project grants, with interests in the role of glia in Alzheimer's disease and other neurological disorders, and will be expected to collaborate closely with other investigators in this group. Salary is competitive, start-up funds are available, and successful application for extramural funding is expected. Requirements include Ph.D. or other doctoral level degree, evidence of research ability and productivity in an area complementary to current faculty interests, and potential for development of novel research approaches and projects within the overall program. Candidates should send a curriculum vitae, statement of research interests, copies of recent relevant publications, and three to five letters of recommendation to: **Robert E. Mrak, M.D., Ph.D., Department of Pathology (517), University of Arkansas for Medical Sciences, 4301 West Markham Street, Little Rock, AR 72205. Affirmative Action/Equal Opportunity Employer.**

BIOLOGY: Tenure-track **ASSISTANT PROFESSOR** position in the Biology Department beginning September 1997. Candidates will possess a Ph.D. with experience and demonstrated excellence in undergraduate teaching. The candidate will be expected to coordinate and teach in the freshman laboratory sequence in cell biology and genetics, and establish a research program which will involve undergraduates. Preference will be given to candidates who can teach a wide range of upper-level courses in cell biology, particularly in the areas of immunology, microbiology, or physiology. Teaching load is 12 contact hours per semester. Send résumé and three letters of reference by February 21, 1997 to: **Dr. Kathleen A. FitzPatrick, Biology Department, Merrimack College, 315 Turnpike Street, North Andover, MA 01845.**

Equal Opportunity Employer

GRAND CANYON UNIVERSITY. The Department of Biology seeks broadly trained applicants for an **ASSISTANT PROFESSOR** tenure-track position beginning August 1997. Ph.D. required. Strong commitment to undergraduate teaching. To teach genetics, vertebrate zoology, introductory biology, and contribute to other teaching needs. Grand Canyon University is a Christian liberal arts institution. Send letter; curriculum vitae; statement of teaching interests and scholarly plans; and names, addresses and telephone numbers of three professional references to: **Dr. Thomas R. Jones, Department of Biology, Grand Canyon University, 3300 West Camelback Road, Phoenix, AZ 85017.** Materials due by March 15, 1997. *Equal Opportunity Employer.*

POSITIONS OPEN

HOWARD UNIVERSITY COLLEGE OF MEDICINE DEPARTMENT OF PHARMACOLOGY ASSISTANT PROFESSOR NEUROPHARMACOLOGY/NEUROTOXICOLOGY

The Department of Pharmacology at Howard University College of Medicine, Washington, D.C. invites applications for a tenure-track position at the **ASSISTANT PROFESSOR** level, **AVAILABLE IMMEDIATELY.** Candidates should possess the Ph.D. (preferably in Pharmacology or Toxicology) and/or M.D. degree(s), with postdoctoral research experience. Candidates are expected to develop an independent research program and to participate in the professional and graduate teaching activities of the department. The appointee is encouraged to interact with the Department of Pharmacology faculty who have active research programs in autonomic, behavioral pharmacology, cancer chemotherapy, cardiovascular, neuroendocrinology, and neuropharmacology. Please submit curriculum vitae, a description of research interests, future plans, and the names of three references to: **Dr. Yousef Tizabi, Search Committee Chair, Department of Pharmacology, Howard University College of Medicine, 520 W Street, N.W., Washington, DC 20059. FAX: 202-806-4453.** The search will continue until the position has been filled. *Howard University is an Equal Employment Opportunity/Affirmative Action Employer. Applications from minority candidates and women are strongly encouraged.*

FACULTY POSITION Division of Pharmacology and Experimental Therapeutics University of Kentucky College of Pharmacy

The Division of Pharmacology and Experimental Therapeutics in the College of Pharmacy at the University of Kentucky invites applications for a tenure-track position at the **ASSISTANT/ASSOCIATE PROFESSOR** level. Candidates should have research credentials in the area of cardiovascular pharmacology with research specialization in cell biology. Minimum requirements are a Ph.D. degree in pharmacology or related field of study and two or more years of postdoctoral experience. Responsibilities include the establishment of a strong extramurally funded research program and a commitment to innovative teaching at the professional, graduate, and postdoctoral levels. Application deadline is April 15, 1997.

Send curriculum vitae, statement of teaching and research interests, up to three reprints and three letters of recommendation that address the candidate's teaching and research potential to: **Dr. Lisa Cassis, Search Committee Chairman, Division of Pharmacology and Experimental Therapeutics, College of Pharmacy, University of Kentucky Medical Center, Lexington, KY 40536-0082.** For additional information contact Web site: <http://www.uky.edu/Pharmacy>. *An Equal Opportunity/Affirmative Action Institution.*

VISITING ASSISTANT PROFESSORS of Biology. Wabash College invites applications for two one year positions in biology beginning July 1997. Position 1: We seek a broadly trained biologist to participate in a team-taught introductory sequence and a senior seminar course. Expertise in immunology and microbiology preferred but not required. Position 2: We seek a person to teach a course in comparative anatomy and embryology, a team-taught introductory biology course, and a freshman seminar. For both positions, a Ph.D. and teaching experience strongly preferred. Send letter of application, curriculum vitae, three letters of recommendation, and a brief statement of teaching experience and interest to: **David Krohne, Chair, Biology Department, Wabash College, P.O. Box 352, Crawfordsville, IN 47933** by March 3, 1997. Email inquiries to krohned@wabash.edu (no electronic applications). *Wabash, a liberal arts college for men, encourages women and minorities to apply. Equal Opportunity Employer.*

The University of Alabama at Birmingham invites applications for a **RESEARCH ASSISTANT PROFESSOR** in the Department of Medicine's Atherosclerosis Research Unit. Candidate needs an earned doctorate in analytic chemistry with 7-10 years of experience in research and development experience in lipoprotein analysis; be able to function independently in a research environment; and have proven ability to write research papers and research grants. Send letter of application, curriculum vitae, and three reference letters to: **Jere P. Segrest, M.D., Ph.D., Professor of Medicine and Director, Atherosclerosis Research Unit, 630 BDB, UAB, Birmingham, AL 35294-0012.**

POSITIONS OPEN

FACULTY POSITION Fred Hutchinson Cancer Research Center

We are seeking to fill one **ASSISTANT, ASSOCIATE, or FULL MEMBER** position in the areas of human genetics or genetic epidemiology. The successful candidate is expected to develop an independent research program that exploits recent advances in the human genome project. We seek a candidate with interests in genome technology and in collaborating with population-based studies on the genetic basis of cancer. The position will be within the Division of Public Health Sciences, and will be part of a cross-disciplinary Genetics Program at the Fred Hutchinson Cancer Research Center (FHRC) with the opportunity for an affiliate appointment at the University of Washington. Candidates should send a curriculum vitae and a concise statement of their research plans, and should have three letters of reference sent to:

**Genetic Epidemiology Search Committee
Fred Hutchinson Cancer Research Center
Molecular Medicine
Mailstop: B1-030
1124 Columbia Street
Seattle, WA 98104**

Applications will be evaluated beginning March 1, 1997.

FHRC is an Equal Opportunity Employer committed to workforce diversity.

TWO BIOLOGY POSITIONS

The University of Southern Indiana invites applications for two tenure-track positions at the **ASSISTANT PROFESSOR** level in biology to begin in August 1997. A broadly trained plant biologist is needed to teach introductory botany and courses in one or more of the following areas: conservation, ecology, or entomology. The second position, pending funding, is for a Developmental Biologist with interests and expertise in neurobiology, chordate anatomy, or cell biology. The University is committed to quality undergraduate teaching, research involving students, scholarship, professional activity, and service to the University and community. Limited institutional funds and space for research are available on a competitive basis. Externally funded research is encouraged. Ph.D. in related area required. Application deadline is February 22, 1997, but applications will be accepted until the positions are filled. Submit letter of application including statements of teaching philosophy and research goals; curriculum vitae; and names, addresses, and Email and telephone numbers of three professional references to: **Dr. Jackson L. Marr, Biology Department Chair, University of Southern Indiana, 8600 University Boulevard, Evansville, IN 47712. Affirmative Action/Equal Opportunity Employer.**

ASSISTANT PROFESSOR OF PHYSIOLOGY. The Biology Department at the University of Northern Colorado invites applications for a tenure-track, nine-month position in physiology. Teaching and research in human and/or vertebrate physiology, directing graduate/undergraduate research, and advising in health-related fields expected. Medical pharmacology experience desirable. Ph.D. in physiology from accredited institution required. Excellence in college biology teaching and established research and publication record expected. Send letter of application, curriculum vitae, statements of teaching philosophy and research plans, graduate transcripts, statement of U.S. citizenship or eligibility to work in United States, and three letters of reference (one addressing teaching). Applications due March 15, 1997. Send to: **Dr. John C. Moore, Department of Biological Sciences, University of Northern Colorado, Greeley, CO 80639. FAX: 970-351-2335; Telephone: 970-351-2921; Email: jcmoores@bentley.univnorthco.edu.** The University's mission includes a strong emphasis on studies in education and teacher preparation. This position is contingent on funding. *The University of Northern Colorado is an Affirmative Action/Equal Opportunity Employer and is committed to fostering diversity in its student body, faculty, and staff.*

ASSISTANT PROFESSOR. State Extension Water Specialist, tenure-track, 12-month. Requires a Ph.D. in environmental sciences (chemistry, hydrology, soils, biology, or related science) with specialty in water. Postdoctoral experience preferred. Demonstrated potential for extension teaching and competitive research (50%/50%). Send curriculum vitae, copies of key publications, statements of extension, teaching and research interests, and three letters of reference by March 3, 1997 to: **Department of Environmental and Resource Science, University of Nevada, 1000 Valley Road, Reno, NV 89512-0013. Equal Opportunity/Affirmative Action Employer.**



Signal Transduction Training Group Iowa State University

National Science Foundation

Postdoctoral Fellowships and Graduate Research Assistantships

Participating Faculty:

Linda Ambrosio <i>D-raf in Drosophila development</i>	Jorgen Johansen <i>Developmental and molecular neurobiology</i>
Philip Becraft <i>Receptor kinases in plant development</i>	Kristen Johansen <i>Nuclear architectural remodeling</i>
Janice Buss <i>Ras proteins, lipid modifications of proteins</i>	Mike McCloskey <i>Signal transduction in mast cells</i>
Donald J. Graves <i>Post-translational protein modifications</i>	Alan Myers <i>Morphogenetic development in yeast</i>
Phil Haydon <i>Synaptic transmission, glia-neuron interaction</i>	Donald S. Sakaguchi <i>Developmental neurobiology</i>
Eric Henderson <i>Atomic force microscopy, telomeres</i>	Ed Yeung <i>Spatial imaging of signal transduction</i>
Richard Honzatko <i>X-ray crystallography</i>	

Women and minorities are encouraged to apply

For further information contact:

Mike McCloskey, Dept. Zoology & Genetics, 532 Science II, Iowa State University, Ames, Iowa 50011-3223

PRODUCT REGULATORY COMPLIANCE

The Goodyear Tire & Rubber Company, a world leader in the manufacturing of polymer and chemical products, is seeking a Product Regulatory Compliance Specialist to work in its Research Toxicology and Regulatory Compliance section, Chemical Research and Development Division, located in Akron, Ohio.

This position is responsible for assessing the compliance of Goodyear polymers and polymeric additives with existing and/or proposed U.S. and international regulations and governing foods packaging and handling, medical devices, and potable water applications. Additionally, this position contracts for product testing and the preparation of U.S. and international product petitions.

Qualified applicants must possess a BS degree in Chemistry plus an advanced degree(s) in toxicology or a closely related graduate degree with a major in toxicology, 7-10 years recent experience in the evaluation of toxicological data and studies, product/chemical regulatory compliance and health-based risk assessment, with 5-10 years recent experience with European regulatory matters pertaining to food packaging, product safety, and polymeric additives and materials.

This position with a Fortune 100 industry leader offers excellent benefits, relocation assistance and a competitive salary commensurate with education and experience. If you have the qualifications and desire to meet the rewarding challenges presented by Goodyear, direct your resume to: **C.P. Kutsko, The Goodyear Tire & Rubber Company, 1144 E. Market Street, Akron, OH 44316.** An Equal Opportunity Employer M/F/D/V. Applicants must be lawfully authorized to work in the U.S.



Collaborative Staff Scientist Position, Equivalent to GS-13 (\$54,629 - \$71,017) Taste and Smell Transduction

Applications are invited for a staff scientist to conduct investigations into the molecular mechanisms involved in taste at the National Institute of Dental Research, National Institutes of Health, Bethesda, MD. The applicant will have demonstrated the ability to utilize both molecular biology and biochemical approaches to investigate mechanisms of signal transduction involved in taste perception. The candidate will be expected to collaborate in developing a program to investigate the molecular details of G-protein coupled signal transduction in taste perception. Candidates must have either an M.D. or Ph.D. degree, as well as postdoctoral research experience working on the biochemistry and molecular biology of taste. Preference will be given to candidates demonstrating a strong peer-reviewed publication record in these areas of research. The candidate will work under the supervision of a tenured/tenure-track investigator.

If you wish to apply for this position, please submit a curriculum vitae and bibliography, a 1-2 page summary of research interests and goals together with 3 letters of recommendation from former preceptors or supervisors to the following address; **NIDR Personnel Office, 31 Center Drive, MSC 2290, Building 31, Room 2C23, Bethesda, MD 20892-2290, (301) 496-6971.** Additional information about the position and qualifications may be obtained by contacting the above address. Applications will be accepted between February 3 and March 3, 1997. *NIH is an equal opportunity employer.*

POSITIONS OPEN

**WAYNE STATE UNIVERSITY
PROSTATE INITIATIVE
TENURE-TRACK POSITIONS**

Wayne State University has allocated in excess of \$6 million for the recruitment of outstanding individuals with an interest in prostate cancer research. There are five tenure-track positions available at the ASSISTANT/ASSOCIATE PROFESSOR level. These positions are in one or a combination of the following departments: Medicine, Molecular Medicine, Pathology, Urology, and Radiation Oncology. Applications are solicited from individuals with an interest in prostate cancer research in one of the following areas: prognostic markers, suppressor genes, apoptosis, cellular signaling mechanisms, angiogenesis and invasion of metastasis. Successful applicants should possess an M.D., M.D./Ph.D., or Ph.D. in cellular biology, molecular biology, or genetics. Salaries are negotiable and generous start-up funds are available. Applicants must demonstrate a proven track record of research in one of the above mentioned areas, preferably as it deals with cancer of the prostate. Applications should contain a full curriculum vitae, a statement of research interest and objectives, and three letters of recommendation, and should be sent to: **Dr. Kenneth V. Honn, Wayne State University, Department of Radiation Oncology, Cancer Biology Division, 431 Chemistry Building, Detroit, MI 48202. Telephone: 313-577-1018; FAX: 313-577-0798.** Positions are available immediately. *Wayne State University is an Equal Opportunity/Affirmative Action Employer.* All buildings, structures and vehicles at WSU are smoke-free. Wayne State University—People working together to provide quality service.

FACULTY POSITION: Assistant Professor of Toxicology/Physiology, Department of Entomology, Auburn University. 12 month, tenure-track position; 75% research, 25% teaching. Responsibilities include teaching insect toxicology and insect physiology; developing a strong research program in insect toxicology relating to mechanisms of resistance, physiological responses to toxicants, or other aspects of toxicology using molecular biology and/or other modern methodologies; and actively participating in the entomology graduate program. Qualifications: Ph.D. in entomology or related field, with experience in insect toxicology. Demonstrated success or potential for outstanding teaching and acquiring extramural funding for research. Postdoctoral experience highly desirable. Review date: February 15, 1997 and continue until a suitable candidate is identified. Send cover letter, curriculum vitae, statement of research interests, transcripts of all college/university work, and names, addresses, telephone and FAX numbers, and Email addresses of three references to: **Dr. Arthur G. Appel, Chair, Toxicology Search Committee, Department of Entomology, Auburn University, AL 36849-5413. Telephone: 334-844-2562; FAX: 334-844-5005; Email: aappel@acesag.auburn.edu.** *AU is an Equal Opportunity Employer.*

RESEARCH ASSISTANT PROFESSOR

The Department of Pharmacology has an opening which can lead to a **TENURE-TRACK POSITION** in areas of cell-cell and interactions and adhesion coupled to signal transduction, function of cadherins and transport properties of polarized cells. Candidate should possess Ph.D. or M.D. Background should be in cell and molecular biology, protein chemistry, and transgenic and gene knockout technology. For fullest consideration send curriculum vitae, summary of research interests, and names of three references by March 1, 1997 to: **Dr. Asrar B. Malik, Professor and Head, Department of Pharmacology, University of Illinois at Chicago, 835 South Wolcott, Room E403, Chicago, IL 60612.** *UIC is an Affirmative Action/Equal Opportunity Employer.*

**BIOCHEMIST
CARLETON COLLEGE**

Applications are invited for a one-year faculty appointment in the Department of Biology. Teaching responsibilities include lecture and laboratory courses in biochemistry, introductory biology, and non-majors biology in applicant's area of interest. Ph.D. preferred—all but dissertation considered. Send application, curriculum vitae, undergraduate and graduate transcripts, a statement of teaching philosophy, a summary of research, and three letters of reference to: **Susan Singer, Department of Biology, Carleton College, Northfield, MN 55057-4025.** Review of applications begins February 28, 1997. *Women and minority candidates are strongly encouraged to apply. Carleton College is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

**COLUMBIASM
Colorado Division**

TRAUMA RESEARCH

Applications from M.D. and/or Ph.D. to develop a program in basic or clinically related trauma research within a currently functioning research program. Salary and start-up funds available. Two thousand square feet of fully equipped research space available. Application letter, including curriculum vitae and names of three references, should be sent to:

**Richard Lester Yukl, M.D.
Columbia-HealthONE Trauma Service
501 East Hampden Avenue
Englewood, CO 80110
FAX: 303-788-6928**

TWO RESEARCH SCIENTISTS POSITIONS

USDA, Agricultural Research Service, Tropical Fruit and Vegetable Research Laboratory, in Hilo, Hawaii, is seeking two permanent, full-time research entomologists, or closely related fields, both GS-0414-12/13/14. First vacancy requires conducting research on a wide variety of approaches that may lead to the development of efficacious and environmentally acceptable methods to control, suppress, and eradicate tephritid fruit fly species of quarantine significance to Hawaii and the mainland United States. Second vacancy requires developing postharvest commodity treatment regimes which result in the certification of efficacy of the treatment regimes for disinfestation on one or more of the four Hawaiian pest tephritid fruit flies on a wide variety of fruits and vegetables. Salary range: \$51,003 to \$78,351 per annum (plus 15% cost of living adjustment). The application deadline is February 17, 1997. For additional information on job requirements and application procedures call **Sharon Guthrie at Telephone: 808-959-4326** between 8 a.m. and noon, Hawaiian time, Monday through Friday. *ARS is an Equal Opportunity Employer. Women and minorities are encouraged to apply. U.S. citizenship is required.*

**INTERDISCIPLINARY
NUTRITIONIST/ RESEARCH PHYSIOLOGIST
OR
RESEARCH PSYCHOLOGIST**

The USDA, ARS, Human Nutrition Research Center on Aging, Boston, Massachusetts, has an opening for a **SCIENTIST** to conduct research on the effects of nutrition on physiological, neurobiological, and biochemical function as well as behavioral performance in aging. *Candidates must be U.S. citizens* and have a degree in nutrition, physiology, or psychology and one year of research experience or a Master's degree or higher level graduate work. In addition, the incumbent must have the ability to design, plan, and conduct research independently in the area of nutrition and behavioral neuroscience or experimental psychology, as well as the ability to write and publish the results of the research. Salary is \$38,638 to \$60,204. For application procedures and forms call **Rosita Hardy at Telephone: 301-344-1920.** Applications must be marked ARS-D7N-032 and postmarked by February 28, 1997.

USDA/ARS is an Equal Opportunity Employer.

MASS SPECTROMETRIST

A Ph.D. level, **RESEARCH TRACK POSITION** is available immediately in the W. M. Keck Foundation Biotechnology Resource Laboratory to lead a growing mass spectrometry section that is currently equipped with an electrospray/ion trap and a research grade, laser desorption/time of flight mass spectrometer. Access will also be available to an electrospray/triple quadrupole instrument. In addition to overseeing analyses on a wide variety of samples submitted by users of the Keck Facility, the successful candidate will be expected to develop a high sensitivity MS/MS sequencing service and must have a strong background in this area as well as excellent interpersonal skills. Opportunities will be available for collaborative research. Applicants should submit a curriculum vitae and two representative reprints to: **Kenneth R. Williams, Director, Keck Facility, Yale University, 295 Congress Avenue, P.O. Box 9812, New Haven, CT 06536-0812.**

Yale University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

RESEARCH SCIENTISTS

Advanced Viral Research Corporation, a leader in the exciting new pharmacology of peptide nucleic acid (PNA) research, is seeking creative scientists to staff its new laboratories in Westchester County, New York City metropolitan area.

Candidates for these positions must have a Ph.D. or M.D. degree with at least one year of postdoctoral training.

Immunologist—with experience in molecular immunology to study the effects of PNAs on immune function both *in vivo* and *in vitro*.

Virologist—with experience in molecular virology to explore the potent broad antiviral effects of PNAs.

Structural chemist—with experience in polymer structure analysts to investigate structure activity relationships of PNAs.

We offer a highly competitive compensation and benefits package. Please forward curriculum vitae to: **Ted Klein & Company, 740 Broadway—9th Floor, New York, NY 10003, FAX: 212-460-9028, ATTN: Brad Miles.** *AVR is an Equal Opportunity Employer.*

MICROBIAL ECOLOGIST. The Water Resources Division (WRD) of the U.S. Geological Survey seeks a microbial ecologist with experience in the use of molecular techniques. Experience with anaerobic culture methods is desirable. This is a four-year appointment with the National Research Program (NRP), Reston, Virginia. Duties include performance of original, independent research in aqueous microbial ecology and multi-disciplinary investigation with senior geochemists, hydrologists, and other NRP microbial ecologists. Ph.D. and postdoctoral experience or equivalent required. Salary c. \$54,000 to c. \$61,700 commensurate with experience. Information about WRD and NRP can be found on the WEB at <http://h2o.usgs.gov>. Write for a detailed vacancy announcement and specific application instructions to: **G. R. Marzolf, U.S. Geological Survey, 432 National Center, 12201 Sunrise Valley Drive, Reston, VA 20192. Email: pamcmah@usgs.gov.** Closing date is March 31, 1997. *The U.S. Geological Survey is an Equal Opportunity Employer, U.S. Citizenship Required.*

ASSOCIATE PROFESSOR

The Department of Veterinary Anatomy and Cell Biology is seeking a cell and molecular biologist for a tenure-track faculty position at the **ASSOCIATE PROFESSOR** level. Applicant must have a Ph.D. or equivalent degree in a biological or biomedical science, postdoctoral experience, research background in cell and molecular biology, ability to teach a departmental course in the professional curriculum, and currently have extramural funding. Application deadline is February 28, 1997, or until suitable applicant is found. Submit curriculum vitae; names, addresses and telephone numbers of at least three references; and a summary of current research to: **Dr. John Martin, Chair of Search Committee, Department of Veterinary Anatomy and Cell Biology, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA 70803.** Reference Number 000878.

LSU is an Equal Opportunity/Affirmative Action Employer.

SUPPORT SCIENTIST POSITION

Geneticist (Plants)/Molecular Biologist, GS-9/11 (\$32,000 to \$51,000 commensurate with experience). Permanent Support Scientist in molecular biology laboratory. Master's degree or higher preferred or extensive experience in molecular biology and plant tissue culture. Duties include contributing to research to engineer improved wheat varieties and assumption of duties of laboratory manager under supervision of project leader. *Candidates must be U.S. citizens.* Contact **Dr. Olin Anderson** for further position information at **Telephone: 510-559-5773; FAX: 510-559-5777; Email: oandersn@pw.usda.gov.** For copy of official vacancy announcement contact: **Jan Lewis, USDA, ARS, WRRCC, 800 Buchanan Street, Albany, CA 94710. Telephone: 510-559-6015.** Closing date for announcement is February 10, 1997. *USDA/ARS is an Equal Opportunity Employer, women and minorities are encouraged to apply.*

POSTDOCTORAL POSITIONS available immediately to study: 1) the molecular mechanisms of angiogenesis by analyzing the intracellular targets of anti-angiogenic drugs, and 2) the functions of related kinase isozymes in signaling networks using isozyme-specific reagents. Experiences with basic molecular biology, tissue culture, and signal transduction pathways preferred. Please send curriculum vitae, a brief statement of past research, and names and addresses of three references to: **Dr. Craig M. Crews, P.O. Box 208103, Biology Department, Yale University, New Haven, CT 06520-8103.**

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of Us.
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Know Us.

Pfizer scientists are involved in some of the most critical research in the world today. As a Fortune 100 company, we have established a product pipeline that is unparalleled, and an intellectual, collaborative environment that inspires scientific achievement. Join our Animal Health team, and participate in creating innovative solutions to disease and illness.

In addition to a fast-paced, yet collegial environment, we offer very competitive salaries and excellent benefits including relocation assistance. Please forward resume to: Employee Resources, Pfizer Inc., Job Code _____, Central Research Division, Eastern Point Road, Groton, CT 06340. For more information about Pfizer, see us on the Internet at: <http://www.pfizer.com>. We are an equal opportunity employer M/F/D/V.



We're part of the cure.

Ph.D. Senior Research Scientist

In this position, you will have major responsibility in the multi-disciplinary teams for the progress of animal vaccine projects by providing the scientific leadership and training in the areas of disease pathogenesis and immunology. You will independently design, conduct and evaluate scientific experiments, creatively apply new knowledge and novel ideas to the project strategy and remain current in the latest advances in animal disease pathogenesis as it relates to the development of animal vaccines.

Candidates must have a Ph.D. and a DVM, or equivalent experience in animal diseases, and at least 3 years' post-doctoral training in pursuing an immunological and pathogenic approach toward the understanding of protective mechanisms in disease. A background in molecular techniques and approaches to vaccine design is highly desirable. Preference will be given to candidates who have direct experience in animal disease models and the molecular immunological approaches to the study of host-pathogen interactions.
Job Code: 2055

BS/MS Lab Assistant

In this position, you will perform experiments to make recombinant vaccines for the major animal diseases caused by viruses. Duties will include genetic manipulation of virus genomes in order to produce recombinant vaccines; generation and maintenance of cell lines developed from DNA/RNA transfection to characterize various animal viruses.

Candidates must have a BS/MS or equivalent in Biology or related scientific fields. In addition, a minimum of 2 years' research experience in a molecular biology and molecular virology laboratory is required.
Job Code: 2059

SCIENTISTS

The R.W. Johnson Pharmaceutical Research Institute (RWJPRI) conducts a wide range of R&D activities supporting Johnson & Johnson's pharmaceutical business units. Currently, several positions exist at our CENTRAL NEW JERSEY location, midway between NYC and Philadelphia, for Scientists to help maintain our worldwide reputation for innovation and excellence: a reputation that was recently recognized with the award of the 1996 National Medal of Technology.

Scientist/Senior Scientist — Protein Biochemistry

Requires a PhD in Chemistry, Biochemistry or a related field and 3-5 years' postdoctoral study. Knowledge of molecular biology, protein biochemistry, receptor biology, and protein purification is essential along with experience in molecular cloning, protein chromatography and assay development; hematopoiesis and inflammation knowledge is a plus. **Dept. 1136**

Associate Scientist/ Senior Associate Scientist

A BS/MS in biology, molecular biology, biochemistry or its equivalent, and 3+ years' experience are required. Experience with protein isolation and purification from mammalian and bacterial cultures; PCR; and DNA cloning is a must; a background in DNA sequencing, mammalian cell transfection, enzyme assays and receptor binding assays is preferred. **Dept. 1137**

Research Associate/ Associate Scientist

A BS/MS in biology, biochemistry, or molecular biology, and 2-3 years' related background are required. Experience with cloning, manipulation of RNA/DNA, protein expression, automated DNA sequencing, PCR, receptor binding, enzyme assays, bacterial culture, and mammalian tissue culture essential. Knowledge of phage display techniques and/or high throughput screening is preferred. **Dept. 1138**

Long considered one of the nation's most progressive employers, Johnson & Johnson is a \$20 billion company committed to maintaining its strong reputation as a forward-thinking, "family-friendly" organization. We provide competitive salaries and comprehensive benefits including medical/dental insurance, 401(k) plan and our LIVE FOR LIFE Wellness Program with on-site fitness centers. To apply, please forward a copy of your resume suitable for scanning into our database (i.e., clean/clear, no graphics, and preferably unfolded) to: Dept. number from above for position of interest, Johnson & Johnson Recruiting, P. O. Box 16597, New Brunswick, NJ 08906-6597. We are an equal opportunity employer and support diversity in the workplace.



THE R.W. JOHNSON
PHARMACEUTICAL RESEARCH INSTITUTE
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A recipient of the 1996 National Medal of Technology

POSITIONS OPEN

POSTDOCTORAL POSITIONS

Molecular Cardiology Program
Columbia University College of
Physicians and Surgeons

POSTDOCTORAL FELLOWSHIP POSITIONS are available in the Molecular Cardiology Program at Columbia University College of Physicians and Surgeons. Applicants should have extensive experience in molecular and cellular biology or in cellular electrophysiology. Prior experience in cardiovascular systems is not required.

Applicants should include a curriculum vitae, reprints of publications, and three letters of recommendation. This material should be sent to: **Dr. Andrew R. Marks, Director of Molecular Cardiology, Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York, NY 10032.**

Columbia University is an Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF CINCINNATI POSTDOCTORAL POSITIONS IN MOLECULAR CARDIOLOGY

Two **POSTDOCTORAL POSITIONS** are available to study: 1) control of gene expression in vascular smooth muscle, and 2) molecular mechanisms for heart failure.

We are currently using transgenic and gene knockout mice for these studies. Interested applicants should immediately contact:

Drs. M. Periasamy and R. Walsh
Division of Cardiology
University of Cincinnati
College of Medicine, ML 0542
231 Bethesda Avenue
Cincinnati, OH 45267
FAX: 513-558-2002

POSTDOCTORAL POSITIONS available July 1, 1997, to study ion channels. Methods we use include patch-clamp, two microelectrode voltage clamp, mutagenesis, cell cloning and PCR-based cloning, DNA hybridization assays, yeast two-hybrid system, phage display, protein overexpression, immunocytochemistry, and immunofluorescence microscopy. Background in recombinant DNA, molecular genetics, or electrophysiology is essential. Send curriculum vitae and names of three references to: **Dr. Arthur M. Brown, Vice President, Research, MetroHealth Medical Center, Rammelkamp Building R301, 2500 MetroHealth Drive, Cleveland, OH 44109-1998.** Email: abrown@research.mhmc.org; Telephone: 216-778-5960; FAX: 216-749-3889. MetroHealth is an affiliate of Case Western Reserve University. *Candidates must meet all requirements to work within the U.S. Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH

The John Wayne Cancer Institute has immediate openings for two **POSTDOCTORAL POSITIONS** with research on: 1) lipid second messenger and PKC signal transduction in human breast cancer, and 2) reversal of multidrug resistance in human cancer. Requires recent Ph.D. or M.D./Ph.D. and experience in cell biology, biochemistry, and molecular biology.

Competitive salary and benefits package. Please submit résumé with cover letter to: **Dr. Myles C. Cabot, Chief, Breast Cancer Research Program, John Wayne Cancer Institute at Saint John's Hospital and Health Center, 2200 Santa Monica Boulevard, Santa Monica, CA 90404.** An Equal Opportunity Employer.

MOLECULAR ENDOCRINOLOGISTS

TWO POSTDOCTORAL RESEARCH FELLOWSHIPS available immediately for recent Ph.D.s in endocrinology, molecular biology, or related discipline to study developmental regulation of either the growth hormone receptor gene or prolactin receptor gene in the chicken. Experience in radioimmunoassay, radioreceptor assay, and current protocols in molecular biology is required. Send curriculum vitae, research interests and names of three references to: **Dr. Larry A. Coghburn, Department of Animal and Food Sciences, Room 040 Townsend Hall, University of Delaware, Newark, DE 19717-1303.** FAX: 302-831-3651; Email: coghburn@strauss.udel.edu. An Equal Opportunity University.

POSTDOCTORAL RESEARCH OPPORTUNITIES: The Dana-Farber Cancer Institute seeks individuals with expertise in targeted mutagenesis and ES cell culture to develop animal models for the study of T-cell development and function. A joint appointment will be held in an appropriate department of the Harvard Medical School. Direct curriculum vitae and inquiries to: **Harvey Cantor, 44 Binney Street, Boston, MA 02115.**

POSITIONS OPEN

The Biological Sciences Curriculum Study (BSCS), now in its 39th year, has an immediate opening for a **FULL-TIME BIOLOGIST** to direct development of a new educational program in genetics and molecular biology. Applicants must have a Ph.D. in genetics or molecular biology, experience in curriculum development, knowledge of educational technologies, and experience teaching at the high school or undergraduate levels. This position requires exceptionally strong writing skills. Salary commensurate with experience; excellent benefit package. Send cover letter, curriculum vitae, and the names of three references by 28 February 1997 to: **BSCS, 5415 Mark Dabling Boulevard, Colorado Springs, CO 80918, ATTN: gen1.** BSCS is an Equal Opportunity Employer and provides a smoke-free workplace. No telephone calls, please.

POSTDOCTORAL POSITIONS are available to investigate the role of growth factors and cytokines in regulation of the JAK/STAT and RAF/MAP kinase pathways, and the nuclear events which are altered as a result of activation of these signaling cascades. Experience in the areas of molecular biology and protein biochemistry is desirable.

Send curriculum vitae and names of three references to: **Andrew Larner, Department of Immunology (NN10), Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, OH 44195.** Email: larner@fdacb.cber.fda.gov; FAX: 301-402-0361.

POSTDOCTORAL POSITION available April 1997 for studies on the interaction of cytokines and neurotrophic factors in the brain. Experience in molecular biology and tissue culture preferred. Position is funded by an NIH training grant and is open to a U.S. citizen or permanent resident. Send curriculum vitae and references to: **Dr. Wilma Friedman, Pathology Department, Columbia University P and S, 630 West 168th Street, New York, NY 10032.** FAX: 212-305-5498; Email: wjf9@columbia.edu. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL FELLOWSHIPS available to characterize the role of the proprotein convertase-matrix metalloproteinase axis in tissue-invasive/morphogenetic programs (e.g., *PNAS* 92:3849, 1995; *Nature* 375:244, 1995; *JBC* 271:9135, 1996). Strong background in cell and molecular biology is required. Submit curriculum vitae and two letters of reference to: **Stephen J. Weiss, M.D., Upjohn Professor of Medicine, University of Michigan Cancer Center, 5301 MSRB III, 1150 West Medical Center Drive, Ann Arbor, MI 48109-0640.**

POSTDOCTORAL POSITION, Available May 1997, to characterize genes that control plasmid replication on the seven indigenous plasmids of *B. Megaterium*. Applicants should have a strong background in microbial genetics, replication, and molecular biology. Screening begins immediately until position is filled. Send curriculum vitae and three references to: **Patricia S. Vary, Department of Biology, Northern Illinois University, DeKalb, IL 60115.** Email: pvary@niu.edu. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS

Available immediately to study the function of a recently cloned membrane glycoprotein from epithelial cells. Basic techniques in protein purification required and those in protein phosphorylation highly preferred. Send a résumé and names of three references to: **K. C. Kim, Ph.D., University of Maryland School of Pharmacy, 20 North Pine Street, Baltimore, MD 21201.** FAX: 410-706-2973.

POSTDOCTORAL POSITION available immediately to study molecular mechanisms of selective neuronal degeneration in animal models and *in vitro*. Candidates should have a Ph.D. or M.D., and a strong background in molecular and histological techniques. Please send curriculum vitae and names of three references to: **Dr. Steven S. Schreiber, Department of Neurology, USC School of Medicine, 1333 San Pablo Street, Los Angeles, CA 90033.** Email: ssschreib@hsc.usc.edu; FAX: 213-225-2369.

POSTDOCTORAL POSITION in mechanisms of gene expression and promoter structure in trypanosomes. Experience in bacterial, phage, molecular genetics, cDNA libraries, molecular pathogenesis, recombinant mechanics, and cell culture relevant. Send statement of interest, curriculum vitae, and arrange for three reference letters to be sent to: **Dr. Gregory A. Buck, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA 23298-0678.** FAX: 804-828-9946; Email: buck@gems.vcu.edu.

POSITIONS OPEN

PROTEIN STRUCTURAL BIOLOGY

A **POSTDOCTORAL POSITION** is available to work on the structure and function of isozymes of the bifunctional enzyme 6-PF-2-K/Fru-2,6-Pase, a key regulator of glucose metabolism. Projects on several NK and T cell surface receptors are also being pursued. Experience in protein crystallography and/or protein expression, purification, and crystallization is required. Send curriculum vitae, a description of research experience, and names of three references to: **Charles Hasemann, University of Texas Southwestern, 5323 Harry Hines Boulevard, Dallas, TX 75235-8884.** FAX: 214-648-7995; Email: hasemann@howie.swmed.edu. *University of Texas Southwestern is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION is available to study regulation of intercellular junctional proteins by protein kinase C phosphorylation. Ph.D. required; background in protein chemistry desirable. Emphasis will be upon the regulation of transepithelial permeability by protein kinase C and cytokine signal transduction pathways (Exptl. Cell Res. 227:12-22, 1996; *Am. J. Physiol.* 270:F869-F879, 1996) in cell culture, tissue level, and clinical programs. Send curriculum vitae and the names of three references to: **James M. Mullin, Ph.D., Lankenau Medical Research Center, 100 Lancaster Avenue, Wynnewood, PA 19096.** FAX: 610-645-2205. *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available immediately for recent Ph.D. to study the regulation of DNA replication in the context of cell-cycle control. Studies include cloning and characterization of potential regulators at G1/S transition in mammalian system. Experience with yeast genetics, construction of cDNA library, radiation, FACS, western blot, and immunoprecipitation will be a definite advantage. Fluency in French will be considered an asset. Interested individuals are invited to submit curriculum vitae and three letters of reference to: **Dr. Hoyun Lee, Department of Research, Northeastern Ontario Regional Cancer Centre, 41 Ramsey Lake Road, Sudbury, Ontario, Canada P3E 5J1.**

DANA FARBER CANCER INSTITUTE HARVARD MEDICAL SCHOOL

POSTDOCTORAL POSITIONS: To study signal transduction and transcriptional regulation in cells responding to stress (heat shock, oxidative, radiation), mitogenic, and immune stimulation. Expertise in protein phosphorylation, site directed mutagenesis, and transfection required. Send curriculum vitae and three references to: **Drs. S. K. Calderwood and M. A. Stevenson, JCRT, Dana Farber Cancer Institute, JFB 205, 44 Binney Street, Boston, MA 02115.**

An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available immediately. Project will study ribozyme-substrate interactions in cells with an overall aim of using catalytic RNAs as medical therapeutics. Qualified applicants will have a Ph.D. or M.D. and a strong background in molecular biology, cell biology and/or RNA biochemistry. Send curriculum vitae with references and a description of previous research experience to: **Dr. Thomas Campbell, Campus Box B168, University of Colorado Health Science Center, 4200 East Ninth Avenue, Denver, CO 80262.** Telephone: 303-315-8311; FAX: 303-315-8681; Email: thomas.campbell@uchsc.edu.

POSTDOCTORAL POSITION available immediately to study the relationship between protein:RNA recognition and catalysis in a well-defined system using biochemistry, molecular genetics, and structural biology (see *EMBO J.* 14:4143, 1995; *Biochemistry*, 35:6559, 1996; and <http://salus.med.uvm.edu/biochem/>). Strong background in enzymology desirable. Send curriculum vitae and names of three references to: **Dr. Christopher Francklyn, Department of Biochemistry, University of Vermont College of Medicine, Burlington, VT 05405.** FAX: 802-862-8229; Email: franck@cmba.uvm.edu.

POSTDOCTORAL POSITION available immediately to study molecular mechanisms of B lymphocyte activation and signal transduction. Ph.D. or equivalent training and experience and excellent communication skills required; background in immunology and publication record in English journals desirable. Send curriculum vitae and names of three references to: **G. A. Bishop, Department of Microbiology, 3-570 BSB, The University of Iowa, Iowa City, IA 52242.** Email: gail-bishop@uiowa.edu. *The University of Iowa is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.*

TENURE-TRACK POSITION
Cellular Immunologist/Cancer Vaccine
Development

The NCI Surgery Branch is recruiting for a tenure-track position within the Division of Clinical Sciences, National Cancer Institute, National Institutes of Health, Bethesda, Maryland. The successful candidate must hold an M.D. or Ph.D. degree and have expertise specifically related to cellular immunology with interest in the development of synthetic and recombinant vaccines. The qualified individual we are seeking in cellular immunology and vaccine development will perform important preclinical research with an aim towards translating findings to clinical protocols. We are seeking an imaginative and ambitious individual who is capable of establishing a vigorous, internationally recognized independent research program. The position will provide an outstanding cellular immunologist with an opportunity to establish himself or herself as an independent investigator conducting independent research aimed at cancer vaccine development.

Resources include laboratory and office space, technical support, and an independent budget to support his or her research activities. Salary depends upon previous experience.

The NIH is an equal opportunity employer.

Applicants should include a curriculum vitae, bibliography with separate listings of peer reviewed publications and invited articles, reviews, book chapters, etc. and a detailed description of research plans. The completed application should be sent by 2/24/97 to: Dr. Mario Sanol, Chairperson, Search Committee, 6130 Executive Blvd. North, Room 715E, Rockville, Maryland 20848-0702.

TENURE-TRACK POSITION
Gene Therapy/Cancer Immunotherapy

The NCI Surgery Branch is recruiting for a tenure-track position within the Division of Clinical Sciences, National Cancer Institute, National Institutes of Health, Bethesda, Maryland. The successful candidate must hold an M.D. degree and have expertise relevant to gene therapy and cellular immunology with experience in the development of clinical protocols in cancer treatment. The qualified individual we are seeking will perform important preclinical research in cancer immunotherapy with an aim towards the development of innovative treatments for patients with cancer. We are seeking an imaginative and ambitious individual who is capable of establishing a vigorous, internationally recognized independent research program. The position will provide an outstanding clinical and laboratory investigator with an opportunity to establish himself or herself as an independent investigator conducting independent research aimed at the development of cancer treatments based on the genetic manipulation of the immune system.

Resources include laboratory and office space, technical support, and an independent budget to support his or her research activities. Salary depends upon previous experience.

The NIH is an equal opportunity employer.

Applicants should include a curriculum vitae, bibliography with separate listings of peer reviewed publications and invited articles, reviews, book chapters, etc. and a detailed description of research plans. The completed application should be sent by 2/24/97 to: Dr. Lance Liotta, Chairperson, Search Committee, 10 Center Drive MSC 1502, Building 10, Room 2A33, Bethesda, Maryland, 20892-1502.

DELIVERING ON THE PROMISE

BIOGEN

OF BIOTECHNOLOGY

In 1996, we introduced to the U.S. pharmaceutical market our first proprietary product, AVONEX™ (Interferon beta-1a) for treatment of relapsing forms of multiple sclerosis. This was a significant corporate milestone which marks our transformation into a fully operational biopharmaceutical company. With an experienced management team, more than 650 talented employees and one of the strongest financial profiles in the industry, today we are poised to build on our record of success. We are now seeking to add the following committed professional with strong values to join the Biogen team.

Scientist - Mass Spectrometry

We are seeking an individual who possesses demonstrated experience in the application of Mass Spectrometry methods to the analysis and characterization of proteins as well as their peptide fragments and carbohydrate components. Candidates must have a Ph.D. in an appropriate area of science and should have several years of relevant industry or postdoctoral experience. Familiarity with ESI-MS, HPLC and protein sample handling methods would be highly desirable. The successful candidate will be a highly motivated Mass Spectrometrists who will collaborate with other Research Scientists and become a critical part of our discovery and development efforts.

Biogen offers what few companies in our industry can - Professional Challenge, Stability, Growth, and one of the strongest financial profiles in the industry. In addition, our compensation and benefits package, including equity participation, is one of the best in the industry, and is designed to attract and retain the finest talent available. If you are one of the best, this is your opportunity to join our expanding universe. Please forward your resume to:

Biogen, Inc., Dept. RC, 14 Cambridge Center,
Cambridge, MA 02142 Fax:(617) 679-2546
E-mail: resumes@biogen.com

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A new global leader in pharmaceuticals is born.

Innovative. Progressive. Responsive. This best describes our philosophy at Novartis Pharmaceuticals Corporation. Resulting from the merger of Ciba and Sandoz, Novartis is now the second largest pharmaceutical company in the world. And we will continue to grow by discovering and developing innovative prescription drugs that treat a wide variety of diseases and conditions — helping millions of people live longer, healthier lives. We're also dedicated to developing dynamic careers in a stimulating environment that's conducive to professional growth. We are seeking a Research Scientist to join our US Research Facility in Summit, New Jersey.

Research Scientist

You will lead a laboratory which is charged with developing/optimizing assays for the High Throughput Screening program; and interact with project teams worldwide. Qualifications include 2+ years of post-doctoral training with 2-5 years of experience in the pharmaceutical industry. A strong background in assay development and biochemical detection methodologies is required; experience with fluorescent detection methods and running reporter gene assays is a decided asset.

Attractive salaries. Comprehensive benefits. Exceptional growth potential. You'll find them all and much more at Novartis. Write your own prescription for success and apply today. Mail/fax your resume, indicating salary history/requirements, to: Staffing Center-JN-372, Novartis Pharmaceuticals Corporation, 556 Morris Avenue, Summit, NJ 07901. We are an equal opportunity employer M/F/D/V.

FERMENTATION SCIENTIST

Life Technologies, Inc., producers of scientific research products, seeks a scientist to manage process development projects in the area of cell culture and fermentation. The incumbent will be responsible for technical leadership of projects involving process organization, scale-up, new technology introduction and new product development. The successful candidate will be responsible for planning, coordination and execution of projects and part of the Technical Manufacturing group, interacting closely with R&D and Manufacturing staff. Incumbent will also lead/manage collaborative projects outside of Life Technologies.

We require a Ph. D. with 2 years or an MS with 5 years relevant experience in Molecular Biology, Microbiology, Biochemistry, Biochemical Engineering or related field. Experience in cell culture, mammalian expression systems, molecular biology and microbiology is required. Experience in microbial fermentation, process development and scale-up is highly desirable. Excellent written and oral communication skills are essential. Candidates with project management experience are preferred.

We provide competitive compensation and benefits. For immediate consideration, please forward resume in confidence to: LIFE TECHNOLOGIES, INC., 7335 Executive Way, Frederick, MD 21704. FAX: 301-846-2333.

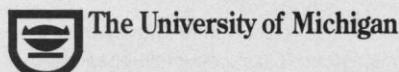


LTI is an equal opportunity employer.
We provide a drug-free workplace.

Executive Vice President for Medical Affairs The University of Michigan

The University of Michigan is seeking nominations and applications for the newly created position of Executive Vice President for Medical Affairs. The Executive Vice President will be the chief executive officer for the University of Michigan Medical Center, having responsibility for leadership and management of the Medical School, the University of Michigan Health System, the Hospitals, the Michigan Health Corporation, and M-Care, and will report directly to the President of the University. Nominees and applicants must hold an M.D., Ph.D., or equivalent degree in a health-care related field. Candidates should also have extensive experience and demonstrated ability in managing a large health care delivery system in a competitive managed care environment. Candidates should understand and support the mission of the University Medical Center in its roles of teaching, research, patient care, and community service, and should have a commitment to affirmative action. Nominations and applications will be accepted, beginning immediately, and should be sent to: **Max S. Wicha, M.D., Chair, Executive Vice President for Medical Affairs Search Advisory Committee, The University of Michigan, 2074 Fleming Administration Building, 503 Thompson Street, Ann Arbor, MI 48109-1340.**

A non-discriminatory, affirmative action employer.



Scientist/Sr. Scientist (Functional Cloning)

ZymoGenetics, a Seattle-based biotechnology company located in the historic Lake Union Steam Plant, is looking for a functional cloning specialist to join our Molecular and Cellular Biology Department.

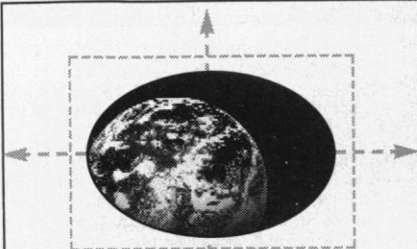
This position will develop functional cloning technologies aimed at identifying novel genes for encoding potential therapeutic products. These technologies include: (1) efficient cloning of functional activities from genomic DNA by introducing cosmid libraries into factor-dependent target host lines and rescuing genes which encode functional activities; and (2) refinements of existing functional cloning methods to allow simultaneous screening of extremely large populations of cDNAs.

Successful candidate will have a Ph.D. degree in Genetics/Molecular Biology and 2-3 years post-graduate training in the above outlined techniques.

As a subsidiary of Novo Nordisk A/S, the world's largest producer of industrial enzymes, ZymoGenetics offers an exciting environment characteristic of a small research and development company, along with the scope and stability of a large pharmaceutical corporation. We also offer intellectual challenge, state-of-the-art facilities and a generous benefits package. Please apply by sending your resume or CV, noting reference # 13R197, to: **ZymoGenetics, Inc., Human Resources, 1201 Eastlake Avenue East, Seattle, WA 98102.** ZymoGenetics is committed to Equal Opportunity and Diversity.



Novo Nordisk



Our agricultural products are redefining biotechnology's limits on a daily basis.

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Ceregen is a world leader in the discovery and development of agricultural products based on advanced chemistry and biotechnology. We seek two highly motivated professionals who will work in an interactive team-based environment. You will create agricultural products for the future as you join a world-class organization and aid in the development of genetically modified plants.

Analyst

The plant regulatory science department of Ceregen has a challenging opportunity for an immunochemist. The successful candidate will work with a team of scientists committed to generating necessary data for the regulatory approval of genetically modified plants. The responsibilities include developing and validating immunochemical methods (ELISA and western blot) for quantitation of proteins in plant extracts, affinity purification of antibodies, conjugation of antibodies to alkaline phosphatase and horseradish peroxidase. The position requires a BS/MS in Biological Science with experience in the development and validation of immunochemical methods, sample preparation, good organizational and people skills, computer skills (IBM/Macintosh). Good Laboratory Practices (GLP) training a plus.

Post-Doctoral Associate

A post-doctoral associate with an interest in food and environmental safety is sought for a multi-disciplinary team studying food and pollen allergy. Emphasis will be placed on projects which address regulatory aspects of the commercialization of plant biotechnology products and which will define relevant physicochemical and biological properties of allergens implicated in pollinosis, food allergy and coeliac disease. The successful candidate will have experience in immunology, molecular biology, plant biology or food biochemistry. Additional experience in protein modeling and bio-informatics will be an advantage.

There's only one thing more diverse than Monsanto's global business units - our talented group of professionals. To join them in a unique environment that's specifically designed for communication and innovation, please **fax or e-mail your resume and salary history to: Attn: Dr. James D. Astwood, Fax: 314/537-6189 or e-mail: jdastw@ccmail.monsanto.com.** EEO/AA Employer M/F/D/V.



CEREGEN
INGENUITY IN AGRICULTURE

Research Associate/ Associate Scientist

The R.W. Johnson Pharmaceutical Research Institute (RWJPRI) conducts a wide range of R&D activities supporting Johnson & Johnson's pharmaceutical business units. Our commitment to innovation resulted in our recognition as a 1996 recipient of the National Medal of Technology, the nation's highest technology honor. To maintain our success and momentum, we are now seeking a Research Associate/Associate Scientist to join the Drug Discovery Division at our CENTRAL NEW JERSEY location, midway between NYC and Philadelphia.

Working with minimum supervision, the selected candidate will set up biochemical and microbiological high throughput screens to identify drugs acting on particular targets; prepare the necessary components; and set up and perform secondary assays to characterize mechanisms of action of drugs. The candidate will also be involved in purifying proteins, handling and processing data, and analyzing and presenting results.

Qualified candidates will possess a MS/BS in Biology or Biochemistry with at least 5 years of related experience. Demonstrated research experience in molecular biology with DNA/RNA isolation and purification, cloning and/or DNA sequencing is required along with experience in operating analytical instruments, spectrophotometers, luminometers, PCRs, HPLCs and robotics. Knowledge/experience in microbiology and genetic engineering is also required.

Long considered one of the nation's most progressive employers, Johnson & Johnson is a \$20 billion company committed to maintaining its strong reputation as a forward-thinking, "family-friendly" organization. We provide competitive salaries and comprehensive benefits including medical/dental insurance, 401(k) plan and our LIVE FOR LIFE Wellness Program with on-site fitness centers. To apply, please forward a scannable copy of your resume to: Dept. 1144, Johnson & Johnson Recruiting, P. O. Box 16597, New Brunswick, NJ 08906-6597. We are an equal opportunity employer and support diversity in the workplace.



**THE R.W. JOHNSON
PHARMACEUTICAL RESEARCH INSTITUTE**

a Johnson & Johnson company

UCR/UCLA PROGRAM IN BIOMEDICAL SCIENCES DIVISION OF BIOMEDICAL SCIENCES UNIVERSITY OF CALIFORNIA, RIVERSIDE FACULTY POSITIONS IN THE MOLECULAR BASIS OF DISEASE

The Division of Biomedical Sciences at the University of California, Riverside, wishes to recruit a highly productive group(s) of scientists whose interests target the molecular mechanisms of human disease. Preference will be given to those investigators most committed to the use of molecular biological methods to complement the research efforts of the independent faculty in the Division and others on the campus. Very productive individual investigators or groups of investigators engaged in collaborative research (i.e., program projects) are encouraged to apply. Currently, four full-time ladder-rank faculty positions are available to support fully or partially up to six M.D.- or Ph.D.-level scientists working within 1-3 investigative groups. The level of appointment will be commensurate with experience. We anticipate filling these positions with a mixture of senior- and junior-level faculty where the number of senior faculty appointments will not exceed two. Each faculty group would be expected to generate significant extramural salary and research support. Space and start-up funds are available commensurate with the productivity and resource capacity of the group.

The Division of Biomedical Sciences administers the initial 5 years of the UCR/UCLA Program in Biomedical Sciences, an accelerated 7-year B.S./M.D. program culminating in the award of an M.D. degree to 24 students/year by the UCLA School of Medicine. The primary teaching duties of the faculty at UCR are equivalent to the first two years of medical school instruction. Teaching responsibilities for each faculty level appointment will be in the medical and graduate curriculum. Teaching opportunities include immunology, histology, gross anatomy, and pathology. All academic faculty appointments must meet the criteria of the University of California for rank and carry a requirement for research, teaching and service. Initial review of applications will begin in February 1997 and the positions will remain open until filled.

The principal investigators should submit an application including: a curriculum vitae; a delineation of the members and research focus of the group; a history and the status of current funding, and three letters of reference. Please include your email address and fax number. **Craig V. Byus, Ph.D., Chairman, Search Committee, Division of Biomedical Sciences, University of California, Riverside, CA 92521-0121. Telephone: (909) 787-4535; FAX: (909) 787-5504; email: craig.byus@ucr.edu.**

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

POSITIONS OPEN

POSITIONS OPEN

TWO POSTDOCTORAL POSITIONS in biochemical/bioinorganic chemistry are available immediately to study zinc coordination and regulation of zinc-finger proteins. Studies will focus on two areas: 1) zinc coordination site re-design in retroviral nucleocapsid proteins and related domains to define physical principles which optimize site structure and stability; and 2) metalloregulation of specific DNA binding activity of canonical Cys₂-His₂ zinc-finger proteins by free zinc concentration. A strong background in spectroscopic, anaerobic and/or molecular biological techniques is preferred. Please have curriculum vitae and the names of three references sent to: **Dr. David P. Giedroc, Department of Biochemistry and Biophysics, Texas A&M University, College Station, TX 77843-2128. FAX: 409-862-4718; Email: giedroc@bioch.tamu.edu. Affirmative Action/Equal Opportunity Employer.**

Two **POSTDOCTORAL POSITIONS** are available immediately in the Hematology/Oncology Unit, Department of Medicine at Massachusetts General Hospital. One position requires a Ph.D. with experience in molecular genetic and positional cloning techniques for research involving the molecular genetics of chromosome 1 abnormalities in malignant melanoma (contact: Dr. Frank Haluska). The other position requires a Ph.D. or Pharm.D. with appropriate experience to study the pharmacokinetics/pharmacodynamics and metabolism of anticancer agents during early phase clinical trials (contact: Dr. Jeffrey Supko). Please send curriculum vitae, summary of research interests/experience, and names of three references to: **Hematology/Oncology Unit, GRJ 1021, Massachusetts General Hospital, 55 Fruit Street, Boston, MA 02114. FAX: 617-726-6974; Email: haluska.frank@mgh.harvard.edu or supko.jeffrey@mgh.harvard.edu.**

POSTDOCTORAL FELLOW. A position is available immediately to investigate transcriptional mechanisms involved in parathyroid hormone regulation of the collagenase gene in osteoblastic cells. This is an opportunity to join a well-funded, highly active research group delineating signal transduction pathways in osteoblasts and regulation of metalloproteinases. Ph.D. with molecular biology experience preferred. Send curriculum vitae and the names and addresses of references to: **Dr. Nicola C. Partridge, Department of Pharmacological and Physiological Science, Saint Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis, MO 63104. Saint Louis University is a Catholic Jesuit Institution dedicated to education, research, and health care. Equal Opportunity. Affirmative Action Employer. Women and minorities are encouraged to apply.**

**POSTDOCTORAL ASSOCIATE
MCLAUGHLIN RESEARCH INSTITUTE**

POSTDOCTORAL POSITION for a vascular biologist/molecular biologist to study growth factor function in neovascularization. Transgenic and targeted mice are used as models for gain and loss of function experiments in blood vessel development, tumor angiogenesis and cardiovascular disease. The Institute consists of highly interactive research groups housed in a new state-of-the-art facility for mouse genetics. Send curriculum vitae plus names and addresses of at least three references to: **Dr. Douglas Coffin, McLaughlin Research Institute, 1520 23rd Street South, Great Falls, MT 59405. Email: dougcoffin@aol.com.**

A **POSTDOCTORAL POSITION** is available for studies of biosynthesis, regulation, mechanisms of nuclear import and of intranuclear function of catalysts of post-translational modifications of nuclear and extracellular matrix proteins. Demonstrated experience in current cell and molecular biology techniques is required and expertise in enzymology is desirable. Send curriculum vitae and three letters of reference to: **Herbert M. Kagan, Ph.D., Department of Biochemistry, Boston University School of Medicine, 80 East Concord Street, Boston, MA 02118. Boston University is an Equal Opportunity Employer.**

POSTDOCTORAL POSITIONS available immediately for the study of (1) molecular mechanisms of an Rb-associated factors involved in regulation of transcription and cell cycle (2) effect of HPV oncogenes on signal transduction. Experience with regulation of gene expression and signal transduction are required. Please send curriculum vitae to: **Dr. Robert Chiu, UCLA, Los Angeles, School of Medicine/School of Dentistry, 54-140 CHS, Los Angeles, CA 90095-1782. Fax: (310) 825-0921. UCLA is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION available to investigate the molecular biology of cytomegalovirus. Ongoing NIH sponsored research involves recombinant DNA techniques, vaccine and antiviral drug evaluation and animal model studies. Background in protein expression techniques helpful. Send curriculum vitae and a list of references to: **Mark Schleiss, M.D., Division of Infectious Diseases, Children's Hospital Research Foundation, University of Cincinnati, 3333 Burnet Avenue, Cincinnati, OH 45229. Email: schlm0@chmc.org. Equal Opportunity Employer.**

RESEARCH PERSONNEL

Advanced Viral Research Corporation (AVR), an established leader in the new exciting pharmacology of peptide nucleic acids (PNAs), is seeking research support personnel to staff its new research laboratories in Westchester County, New York City metropolitan area.

Candidates for these positions must have Bachelor's or Master's degrees, with at least one year of laboratory research experience. Candidates should be familiar with techniques of modern molecular biology and cell culture.

We offer highly competitive compensation and benefits packages. Please forward curriculum vitae to: **Ted Klein & Company, 740 Broadway, New York, NY 10003, FAX: 212-460-9028, ATTN: Brad Miles. AVR is an Equal Opportunity Employer.**

UNIVERSITY OF CALIFORNIA, IRVINE

Two **POSTDOCTORAL POSITIONS** are available immediately to study filamentous development in medically relevant yeast (*Science*, 262:1741-1744, 1993; *Science*, 266:1723-1726, 1994). Research projects include: MAP kinase mediated signal transduction, transcriptional regulation, cell cycle regulation of morphogenesis. Experience with molecular and cell biology is essential. Competitive compensation. Send curriculum vitae and names of three references to: **Dr. Haoping Liu, Department of Biological Chemistry, College of Medicine, University of California at Irvine, Irvine, CA 92697. FAX: 714-824-2688; Email: H4LIU@UCI.EDU.**

University of California, Irvine is committed to excellence through diversity.

**CARDIOVASCULAR THROMBOSIS
RESEARCH
JOHNS HOPKINS UNIVERSITY**

POSTDOCTORAL POSITION to study integrin gene regulation in vascular cells, functional and mechanistic differences in integrin polymorphisms (*NEJM* 334:1090, 1996), platelet cellular and molecular biology, and gender differences in platelet function. Experience in areas of molecular or cell biology, gene transcription, platelet physiology, or integrin biology desirable. Send curriculum vitae and names of three U.S. references to: **Paul F. Bray, M.D., Ross 1015 JHU, 720 Rutland Avenue, Baltimore, MD 21205. Telephone: 410-955-7417; Email: pfb@welchlink.welch.jhu.edu. An Affirmative Action/Equal Opportunity Employer.**

**WASHINGTON UNIVERSITY
SCHOOL OF MEDICINE
POSTDOCTORAL POSITION**

Available immediately to study the molecular and genetic mechanisms of metal homeostasis in human neurodegenerative disease (*PNAS* 93:14030, 1996; *Hum. Mol. Gen.* 5:1989, 1996). Experience in cell and molecular biology required. Send curriculum vitae and names of references to: **Dr. Jonathan D. Gitlin, Department of Pediatrics, Washington University School of Medicine, St. Louis Children's Hospital, 1 Children's Place, St. Louis, MO 63110; Email: gitlin@kidsa1.wustl.edu. Washington University is an Affirmative Action/Equal Opportunity Employer.**

NIH POSTDOCTORAL POSITIONS: One position available immediately for Fellow to work on the interactions of retroviral Gags with cellular proteins. Background in protein biochemistry (protein-protein interaction), cell biology, and molecular biology is required. Salary range begins with \$28,000 and will be commensurate with experience. Qualified and interested candidates should send curriculum vitae and names and addresses of three references to: **Herbert C. Morse III, Chief, Laboratory of Immunopathology, NIAID, Building 7, Room 304, 7 Center Drive MSC 0760, Bethesda, MD 20892-0760. Telephone: 301-496-6379; FAX: 301-402-0077. Email: hmorse@atlas.niaid.nih.gov. NIH is an Equal Opportunity Employer.**

POSITIONS OPEN

**FOUR POSTDOCTORAL FELLOWSHIPS
STARTING DATES RANGE FROM
MARCH 1, 1997 TO SEPTEMBER 1, 1997
BIOLOGY OF PROSTATE CANCER
BONE METASTASIS**

The positions are in a large multidisciplinary laboratory consisting of basic and translational projects related to prostate cancer. Applications are requested from candidates who have an interest in the complex biology of prostate cancer metastasis to the bone. Candidates who have had experience in bone biology whether or not this experience included aspects of oncology are especially encouraged to apply. In addition, applications are solicited from those with experience in cell biology, molecular biology, and immunology. These two to three year positions are renewable annually based on performance, with a starting salary commensurate with experience and scientific independence in the fields of interest. Send letter of interest and curriculum vitae to: **Robert Vessella, Ph.D., University of Washington, Urology Number 356510, Seattle, WA 98195-5610. The University of Washington is building a culturally diverse faculty and strongly encourages applications from female and minority candidates. The University is an Equal Opportunity/Affirmative Action Employer.**

The University of Washington offers NIH supported **POSTDOCTORAL RESEARCH TRAINING** (two years starting July 1997) in gastroenterology-related topics including Carcinogenesis and Molecular Genetics (e.g., Barrett's esophagus, UC tumorigenesis), Molecular Biology and Gene Therapy (e.g., gene transfer), Cell Biology and Biochemistry (e.g., mucin, receptors, ion transport), and Epidemiology and Outcomes (e.g., cancer prevention). Multidisciplinary preceptors include S. Lee, R. Bell, E. Boyko, N. Fausto, R. Haggitt, M. Hamblin, L. Hartwell, B. Hille, D. Hockenbery, M. Kay, A. Kristal, L. Loeb, R. Martin, T. Nguyen, W. Osborne, J. Potter, P. Rabinovitch, B. Reid, C. Rubin, T. Vaughan, P. Verdugo, and E. White. U.S. citizenship/permanent residency and academic commitment required. Send applications (research interests, curriculum vitae, three letters of recommendation) to: **Toan Nguyen, M.D., GI Section (111 GI), VA Medical Center, 1660 South Columbian, Seattle, WA 98108. Applicants are also encouraged to contact potential preceptors. The University of Washington is an Affirmative Action/Equal Opportunity Employer.**

**PRE- AND POSTDOCTORAL POSITIONS
UNIVERSITY OF MARYLAND, BALTIMORE**

The Interdisciplinary Program in Muscle Biology has funded positions for training in biophysics, biochemistry, physiology biomechanics and cellular, developmental and molecular biology of skeletal, cardiac and smooth muscle. Postdoctoral applicants should Email their letter of interest, curriculum vitae, and list of references to: **RJBWR@umabnet.ab.umd.edu.** Predoctoral candidates should request an application via Email. NIH-National Institute of Arthritis and Musculoskeletal and Skin Diseases funded positions are available for U.S. citizens and permanent residents; other support may be available for non-residents.

Further information is available at <http://som1.ab.umd.edu/muscle/home.html> or contact: **Dr. Martin Schneider, Program in Muscle Biology, University of Maryland at Baltimore, 108 North Greene Street, Baltimore, MD 21201. The University of Maryland is an Equal Opportunity Educator and Employer.**

**POSTDOCTORAL POSITION
DNA CHIP DEVELOPMENT**

Position open immediately to participate in a collaborative effort in developing a fluorescent, DNA-chip based technology with applications in DNA sequence analysis and gene expression. Experience in molecular biology is essential. Send a curriculum vitae and names of three references to: **Dr. John Shumaker, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, T811, Houston, TX 77030. Email: shumaker@bcm.tmc.edu. FAX: 713-798-5386. Baylor College of Medicine is an Equal Opportunity Employer.**

POSTDOCTORAL FELLOWS: Molecular Biology/Immunology. Highly motivated scientists sought for funded positions. Investigate regulatory signal transduction in cell lines and engineered mouse mutants. Mid-1997: Biochemistry and immunology of IL-4; Late 1997: Apoptosis regulation in T cell lineage. Track record in molecular biology, biochemistry, or immunology highly desired. Contact: **Dr. Mark Boothby, Department of Microbiology and Immunology, Vanderbilt University, Nashville, TN 37232-2363.**

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...of drug development research with the DuPont Merck Pharmaceutical Company. We are focused on meeting unmet medical needs through the discovery and development of innovative compounds leading to novel pharmaceuticals.

Molecular Biologist

The position requires a scientist with a strong background in molecular biology. The candidate should have experience in RNA and DNA analysis, library construction and screening, PCR, and the evaluation of gene expression. Experience with DNA sequence analysis and the searching of molecular sequence databases is also desirable. A BS/MS degree in Molecular Biology or related field with 2-3 years of work experience is required. (Code: SD-MB)

Yeast Geneticist

A candidate is sought to support the company's efforts in using yeast as a tool for drug discovery. The successful candidate must have a demonstrated ability to apply molecular biology techniques for the manipulation of yeast. Responsibilities will include carrying out experiments requiring skills in RNA and DNA analysis, library construction and screening, PCR, and gene expression in yeast. A BS/MS degree in Molecular Biology or related field with 2-3 years of work experience is required. (Code: SD-YG)

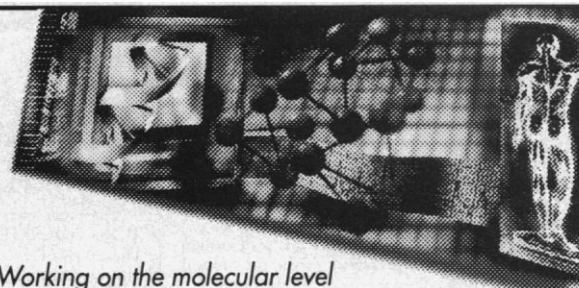
Cell Biologist

A cell biologist is sought for the development and characterization of monoclonal antibodies with a focus on antibody engineering. The candidate should have experience in generating and selecting antibodies from standard fusion technology and bacteriophage display libraries, production, purification, characterization of Mabs and Fab fragments, and expression of Mabs in E. coli and mammalian cells. In addition, the selected candidate will have experience in immunological methods such as RIAs, ELISAs, immunoprecipitations and epitope mapping. A BS/MS degree in Biotechnology, Cell Biology or Microbiology and 3+ years experience or equivalent are required. (Code: SD-CB)

Our location, in Wilmington, DE, offers an attractive lifestyle with easy access to all the cultural, academic and recreational activities of the Eastern Seaboard. The DuPont Merck Pharmaceutical Company can offer you an excellent compensation and benefits package. To be considered, please forward your resume, indicating position of interest, to: Human Resources-(Code), The DuPont Merck Pharmaceutical Company, Experimental Station, 400/2413, P.O. Box 80400, Wilmington, DE 19880-0400. An equal opportunity employer, M/F/D/V.

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The DuPont Merck Pharmaceutical Company
Merging Strengths...Emerging Opportunities.



Working on the molecular level
to conquer, treat, or prevent
debilitating diseases.

DRUG DISCOVERY RESEARCH AT SCHERING-PLOUGH

At the Schering-Plough Research Institute, insightful scientists are discovering innovative therapeutic agents that challenge humankind's most debilitating diseases. If you are seeking an opportunity to be on the cutting edge of pharmaceutical discovery, become part of an advanced multidisciplinary research group.

ASSOCIATE SCIENTIST Structural Chemistry

We seek a versatile, organized and highly motivated scientist to join an interdisciplinary team in structure-based drug discovery. To qualify, you will need a BS in the Physical or Biological Sciences with a minimum of 4-7 years of related experience or an MS with a minimum of 2-4 years of experience. Expertise in molecular biology (including protein expression systems and site directed mutagenesis) and in protein purification (including low pressure chromatography, FPLC and HPLC) is essential. Familiarity with structural biology, enzyme kinetics, baculovirus and mammalian cell culture is an asset. An ability to work both independently and as an effective team member is critical.

We offer an excellent compensation package including a competitive salary and comprehensive benefits. For prompt, confidential consideration, we invite you to forward a resume with salary requirements to: Human Resources-BG, Dept. DD9666, Schering-Plough Research Institute, 2015 Galloping Hill Road, Kenilworth, NJ 07033-0539. You may also respond via e-mail to: spri@spcorp.com. Please include the Department Code for your position of interest in the Subject Line. We are an equal opportunity employer. *We regret we are unable to respond to each resume. Only those selected for an interview will be contacted.*



Schering-Plough
Research Institute

Using Science for Human Advantage

POSITIONS OPEN

POSTDOCTORAL RESEARCH OPPORTUNITIES

**Biology and Biotechnology Research Program
Molecular and Structural Biology Division**

The Molecular and Structural Biology Division of Lawrence Livermore National Laboratory has the following appointments for **POSTDOCTORAL SCIENTISTS**. These are two-year appointments with possible extension to a third year.

POSTDOCTORAL FELLOW—Drug/Carcinogen Metabolism: Work will involve studies of the rodent and human metabolism of the food carcinogen PhIP and detection of urinary metabolic products. This self motivated individual will also perform extractions of complex samples using multi-step solid-phase methods and operate analytical chemistry equipment. Candidates must have a recent Ph.D. in toxicology, analytical chemistry or equivalent and knowledge of analytical chemistry methods, especially solid-phase extraction and mass spectrometry. Should be experienced in drug or carcinogen metabolism with a proven record in chemical toxicology and/or medicinal chemistry.

POSTDOCTORAL FELLOW—Protein Crystallography: As assistant to the head of the Crystallography Group, you will participate in phasing, model building, and refinement of complex protein structures. A significant part of your work will involve development of protein structure analysis program and crystallographic computing. For more information, look on <http://www.structure.llnl.gov>. Candidates must have a Ph.D. in biochemistry, biophysics, chemistry or equivalent and advanced knowledge of protein crystallography and crystallographic computing. LLNL offers a challenging work environment and a competitive salary/benefits package. Qualified individuals are invited to send their resume to: **Mary Anne Holman, Recruiting and Employment Division, Department AJS1CV7MH, Lawrence Livermore National Laboratory, P.O. Box 5510, L-725, Livermore, CA 94551-5510.** LLNL is an Equal Opportunity Employer.

**NIH POSTDOCTORAL POSITION
Novel Expression Systems for
Engineered Antibody-Toxin
Fusion Proteins**

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POSTDOCTORAL POSITION available immediately examining physiology and molecular biology of biofilm bacteria, with particular interest in cell-to-cell communication. Exceptional opportunity to work in a multidisciplinary environment, applying molecular biology in conjunction with state-of-the-art techniques including confocal microscopy. Ph.D. in microbiology, molecular biology, or other appropriate background required. Salary commensurate with experience. Send curriculum vitae and three letters of recommendation to: **Dr. Tim McDermott, Center for Biofilm Engineering, Montana State University, Bozeman, MT 59717.** ADA/Affirmative Action/Equal Opportunity/Veteran Preference.

POSTDOCTORAL POSITION—Project in experimental strategies to target drugs to brain tumors using either synthetic chemical or molecular biological approaches. Looking for independent, motivated individual trained in either organic chemistry, molecular pharmacology, or related field. Excellent opportunity to contribute to novel research initiatives and work in an interactive environment. Please send complete curriculum vitae to: **J. M. Gallo, c/o Human Resources, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111.** See Scientific Report at <http://www.fccc.edu>. Equal Opportunity Employer.

POSITIONS OPEN



ARIZONA STATE UNIVERSITY

MAYTAG POSTDOCTORAL RESEARCH ASSOCIATE

One year (with possibility of a one year extension) **POSTDOCTORAL RESEARCH FELLOWSHIP** facilitating collaborative research with a faculty member in the Department of Zoology. Applicants must send: 1) curriculum vitae, 2) three letters of recommendation, 3) reprints of publications, 4) description of previous research, and 5) description of the collaborative research plan, to the faculty member with whom they propose to collaborate.

Applicants must have received a doctoral degree in 1993 or later. Application deadline: March 24, 1997. Starting date: July 1, 1997. Applications from two individuals wishing to share the position will be considered.

A list of faculty and their research interests may be obtained either from the **Maytag Search Committee, Department of Zoology, Arizona State University, P.O. Box 871501, Tempe, AZ 85287-1501** (FAX: 602-965-2519) or via the Departmental Web site address: <http://lsvl.la.asu.edu/zoology/jobs>. Arizona State University is an Equal Opportunity/Affirmative Action Employer.

RESEARCH TRAINING IN NUTRITIONAL AND INTERVENTIONAL GERONTOLOGY

POSTDOCTORAL and **PREDOCTORAL FELLOWSHIPS** are available at the University of Texas Health Science Center at San Antonio, an internationally recognized center for aging research. Supported by the National Institute on Aging, the training program focuses on transgenic, hormonal, and nutritional probes of the aging processes. Training is available in metabolic regulation, molecular endocrinology and neuroendocrinology (Kalu, McCarter, Nelson, Reiter, Strong, Ward), DNA repair and free radical biology (Masters, Richardson, Walter, Yu), Immunology (Fernandes), menopause (Bryzyski, Schenken), osteoporosis (Kalu, Katz, Mundy) and neural control of the cardiovascular system (Bishop, Herlihy, Haywood, Johnson). *Traineeships are limited to U.S. citizens and permanent residents.* Send a letter specifying research interests, curriculum vitae, transcripts, and three letters of recommendation to: **Dr. James F. Nelson, Department of Physiology, University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78284-7756.**

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YALE UNIVERSITY SCHOOL OF MEDICINE

Applicants are invited to apply for **POSTDOCTORAL POSITIONS** in Developmental Neurobiology. One project will study the structure/function of brain-enriched protein tyrosine phosphatases using molecular and immunocytochemical techniques. Preference will be given to applicants with experience in metabolic labeling of primary cell cultures, yeast two hybrid system, or gene knock-out techniques. A second position is available for applicants with a background in immunology to investigate autoimmune disorders of the central nervous system, including the recently advanced molecular mimicry hypothesis for Tourette's syndrome and obsessive compulsive disorder. For funding, must be American citizen or resident. Send curriculum vitae and the names and telephone numbers of three references to: **Dr. Paul Lombroso, SHM I-270, 230 South Frontage Road, Yale University School of Medicine, New Haven, CT 06520.** Telephone: 203-737-2224; Email: Paul_Lombroso@QM.Yale.edu.

**POSTDOCTORAL POSITION
TRANSCRIPTIONAL REGULATION/
PROSTATE CANCER**

Available immediately to investigate the role of steroid hormones in the transcriptional regulation of drug-resistance genes. Successful applicant will interact with an interdisciplinary group focused on the study of basic and clinical aspects of prostate cancer. A Ph.D. in the biological sciences is required; previous experience in the study of gene regulation or animal models is highly desirable. Salary commensurate with experience. Please submit a curriculum vitae and names of three referees by March 1, 1997 to: **Kathleen W. Scotto, Ph.D., Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021.** Email: k-scotto@mskcc.org. Equal Opportunity Employer.

POSITIONS OPEN

**POSTDOCTORAL POSITION
JOSLIN DIABETES/HARVARD
MEDICAL SCHOOL**

Applications are invited for a **POSTDOCTORAL POSITION** available immediately for NIH funded studies of poly-endocrine autoimmune diseases (diabetes, thyroiditis, and adrenalitis) and diabetic kidney complications in mice. Candidates should have a Ph.D. with 0 to 2 years of postdoctoral experience in molecular biology or immunogenetics and possess expertise in breeding studies, gene mapping, cloning sequencing and expression. Please send curriculum vitae and the names, addresses and telephone numbers of three references to: **Dr. Masakazu Hattori, Section on Immunology and Immunogenetics, Joslin Diabetes Center, One Joslin Place, Boston, MA 02215.** Email: hattorim@joslab.harvard.edu; FAX: 617-732-2589.

ANNOUNCEMENTS

BELLE AWARD

The Biological Effects of Low Level Exposures (BELLE) Advisory Committee seeks nominations for the first Annual **BELLE RESEARCH AWARD**. The Award will recognize outstanding scientific contributions providing mechanistic insight of chemical and/or radiation induced adaptive responses and how they may affect the nature of dose response relationships especially in low dose areas of the dose response curve.

BELLE, which represents a cooperative activity of representatives of various federal agencies, private sector companies and universities, was established in 1990 and is administered by the University of Massachusetts at Amherst under the direction of **Professor Edward J. Calabrese**.

The BELLE Advisory Committee is committed to the enhanced understanding of low dose responses of all types (i.e., linear, sublinear, U-shaped) and their implications for the risk assessment process. BELLE publishes a scholarly newsletter that is distributed to 11,000 scientists world wide. For those interested in obtaining more information about BELLE, including obtaining copies of past newsletters, visit the BELLE web site at: www.belleonline.com or contact the BELLE office.

The BELLE Award consists of an honorarium (\$2,000) and a plaque. The awardee will be asked to provide a synopsis of their work for publication in the journal *Human and Experimental Toxicology*.

The nominations should include a two page summary of the contributions of the nominee and should be received by April 15, 1997 in the BELLE office at: **North-east Regional Environmental Public Health Center, School of Public Health, University of Massachusetts, Amherst, MA 01003.** Telephone: 413-545-3164; FAX: 413-545-4692; Email: edwardc@schoolph.umass.edu.

BRAIN TUMOR RESEARCH FUNDING

The Brain Tumor Society will fund basic science **RESEARCH PROJECTS** for up to a two year period, at a maximum of \$50,000 per year. For 1997, grants will be limited to research being conducted in the following states: Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and Washington, DC. Any project with the potential to advance basic scientific research in brain tumors will be considered for funding. Funds may be used for start-up projects of supplementary funding. Funds will not be granted for indirect costs. For information and application forms, please contact: **Judi Taylor Cantor, The Brain Tumor Society, 84 Seattle Street, Boston, MA 02134-1245.** Telephone: 617-783-0340, 800-770-8287. Visit the Web site at www.tbts.org. Email: info@tbts.org. Projects must be submitted no later than April 16, 1997.

**REQUEST FOR PROPOSALS
GENETIC SEXING STRAINS OF THE
MEDITERRANEAN FRUIT FLY**

The Animal & Plant Health Inspection Service (APHIS) of the USDA invites proposals to fund the construction of stable genetic sexing strains of the Mediterranean Fruit Fly (*Ceratitis capitata*). The grant award will be up to \$100,000 and may be renewed annually for up to five years depending on Congressional funding and continued APHIS interest in the project. Applications must be received by April 1, 1997. For a complete copy of the RFP, including application instructions, please contact: **Douglas Prasher, USDA, Building #1398, Otis ANGB, MA 02542-5008.** Telephone: 508-563-9303; FAX: 508-564-4398; Email: dprasher@capecod.net.



THE CLEVELAND CLINIC FOUNDATION

The Cleveland Clinic Foundation NEUROPATHOLOGIST

The Cleveland Clinic Foundation is seeking a Board-certified Neuropathologist to fill a position at the Assistant Staff level, with joint appointments in the Departments of Neurosciences and Pathology. Applicant must have an independent research program, and will be expected to devote 20% effort to diagnostic neuropathology. Competitive salary, generous start-up funds, and excellent opportunities for interactions with programs in the Department of Neurology, Neurosurgery, and Neurosciences are available. Neuroscience programs at The Cleveland Clinic Foundation are undergoing a rapid growth phase, with several new Staff appointments planned in the near future. Candidate should send CV, name and fax number of three references, and brief statement of research interest to **Dr. Bruce D. Trapp, Chairman, Department of Neurosciences-NC/30, The Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, OH 44195.** *The Cleveland Clinic Foundation is an Equal Opportunity/Affirmative Action Employer.*

University of
 Waterloo **Department of Biology**
MICROBIOLOGY

The Department of Biology of the University of Waterloo invites applications for a TENURE-TRACK position at the ASSISTANT or ASSOCIATE PROFESSOR level. Applicants must have a Ph.D. in microbiology, and be prepared to establish an active research program in environmental microbiology, the biotechnology applications of microbiology or similar areas. Duties include research, teaching at the undergraduate and graduate levels in microbiology, and graduate student supervision.

Salary will be commensurate with qualifications and experience. Applicants should send their curriculum vitae, the names of three individuals willing to furnish letters of reference, and an outline (1-2 pages) of their proposed research program to: **Dr. William D. Taylor, Professor and Chair, Department of Biology, Faculty of Science, University of Waterloo, Waterloo, Ontario, N2L 3G1 CANADA.** The closing date for applications is March 31, 1997.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. The University of Waterloo encourages applications from all qualified individuals, including women, members of visible minorities, native peoples, and persons with disabilities. This appointment is subject to the availability of funds.

Additional information on the Department is available at <http://www.science.uwaterloo.ca/biology/biology.html>

X-RAY CRYSTALLOGRAPHY

Two funded postdoctoral positions are available immediately for structural studies of DNA replication and repair proteins by x-ray crystallography (see <http://sbweb.med.harvard.edu/tome>). We are investigating the structure and function of phage T7 DNA replication proteins in multiprotein complexes containing DNA substrates. These studies benefit from a strong collaboration with the research group of Charles Richardson. A second focus of our group is the structure of DNA base excision-repair proteins complexed with selective DNA-based inhibitors, in collaboration with Gregory Verdine. Candidates should have experience in macromolecular crystallography and expertise in protein biochemistry. Data-quality crystals of several of these protein-DNA complexes are in hand. Successful candidates will join a research team with state-of-the-art x-ray and computing facilities. Send curriculum vitae with the names of three references via email to: tome@jeckle.med.harvard.edu, or to: **Tom Ellenberger, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School, 240 Longwood Avenue, Boston, MA 02115.**

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A post-doctoral position is available immediately to study the molecular basis of human neurological disorders such as Fragile X syndrome and Friedreich's Ataxia that result from trinucleotide repeat expansion. Specific areas of interest include mechanisms of repetitive sequence instability, the basis of the chromosome fragility associated with certain triplet expansion diseases, the effects that expanded repeats have on gene expression, and the normal function of the genes affected in these disorders. Demonstrated competence in core molecular biology techniques is essential. Experience with mammalian tissue culture techniques, the analysis of DNA/chromatin structure, protein expression/purification, and/or the analysis of low level transcripts would be desirable. Candidates should have received their degree within the last 5 years. Applicants should submit their Curriculum vitae and three letters of reference as soon as possible to:

Karen Usdin, Ph.D., Building 8, Room 202, 8 Center Drive MSC 0830, National Institutes of Health, Bethesda, MD 20892-0830; email ku@helix.nih.gov; fax: 301-402-0240

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POSITIONS OPEN

POSTDOCTORAL RESEARCH POSITION


Available immediately for Ph.D., M.D. in strong interdisciplinary group of scientists within the East Carolina University School of Medicine Center for Alcohol and Drug Abuse Studies. Research experience desired in areas of psychopharmacology and neurochemistry with background helpful in CNS techniques including microinjection, cerebral dialysis, push-pull perfusion, and chromatographic separation of serotonin and catecholamide neurotransmitters. State-of-the-art procedures including peptide synthesis, radioligand receptor analysis, and antisense technology are available. Send curriculum vitae and three letters of recommendation to: **Prof. R. D. Myers, Department of Pharmacology, School of Medicine, East Carolina University, Greenville, NC 27858.** Federal law requires proper documentation of identity and employability at the time of employment. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available to study activities associated with yeast transcription factors TFIIIE and TFIIF. Projects involve protein characterization, kinetic studies, targeted mutagenesis, and yeast genetics. *Must be U.S. citizen or permanent resident.* Send curriculum vitae and addresses of three references to: **Michael H. Sayre, Ph.D., Department of Biochemistry, Johns Hopkins University, 615 North Wolfe Street, Baltimore, MD 21205.** *Affirmative Action/Equal Opportunity Employer.*

MEETING

The International Cannabinoid Research Society will meet at Evergreen Conference Center, Stone Mountain, Georgia, June 20 to 22, 1997. Contact: **Diane Mahadeen, Telephone/FAX: 802-865-0970; Email: icrs@together.net** or see web page: http://129.49.19.42/ICRS/ICRS_main.html for information.

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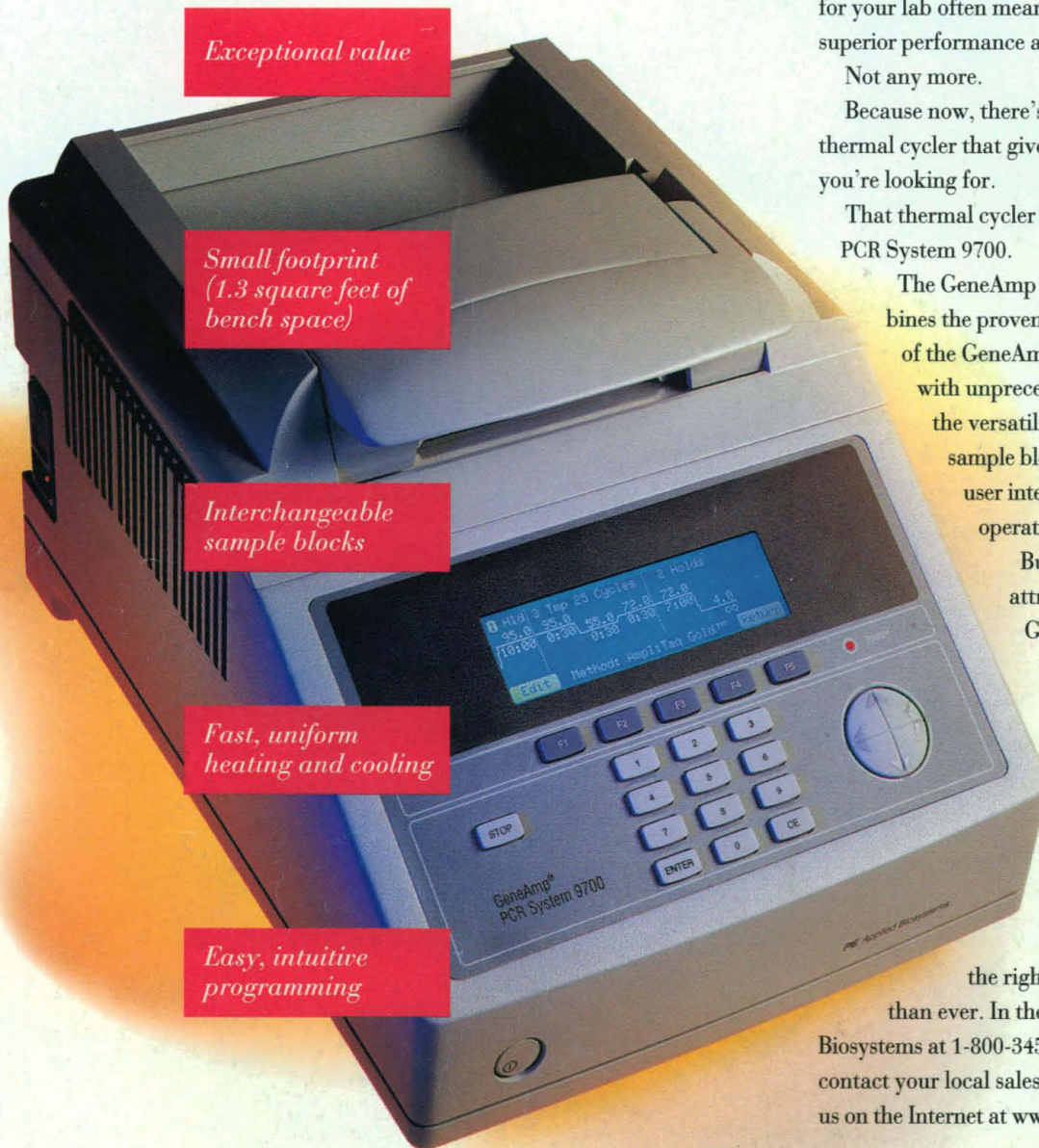
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