BRANCHING OUT: CAREERS & GRADUATE PROGRAMS FOR BS AND MS SCIENTISTS

BY JOHN TIMPANE

The nature of work is changing. In light of the great reorganization in the biopharmaceutical industry and the financial changes facing academic science, anyone who wants to be a professional scientist has to be current, competitive, and versatile. Scientists with BS and MS degrees are showing that they are all three. Below, we visit Hoffman-La Roche, Amgen, Genetics Institute, and NeXstar, as well as graduate programs at the University of Colorado at Boulder, the University of Colorado Health Sciences Center, Washington University, and New York University. We hear from scientists in the United Kingdom concerning the state of European industrial and academic science. Everywhere the message is the same: whatever branch their careers take—medicine, academic research, industrial science—BS and MS scientists, the bulk of the world scientific work force, are doing excellent science wherever science is done.

continued...
Analysis of the structure, function and regulation of genes in health and disease has yielded profound insight into the origin and progression of major diseases and is creating unprecedented opportunities to discover innovative drugs, vaccines and new diagnostic tests based on a rational understanding of molecular pathology.

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Part 1: Career Directions in Industry

“TRAINING FOR THE UNEXPECTED”: BS AND MS SCIENTISTS AT HOFFMAN-LA ROCHE

At the Roche facility in Nutley, New Jersey, we met Vince Mattaliano and Nadine Tare of Hoffman-La Roche. With a BS in chemistry from Long Island University and an MS in biochemistry from Fairleigh Dickinson University, Mattaliano has followed a fascinating path to his present position as manager of the medical communications services department. Tare, with a BS in zoology from the University of Illinois, is a principal scientist in the department of inflammation and autoimmune diseases. Below, they discuss careers and career decisions for scientists with BS and MS degrees.

Mattaliano:
I’ve been at Hoffman-La Roche since 1967, and in many ways you could say my career has done some ziggs and zags. I began as a quality control analyst, and I became a biochemist in the department of drug metabolism in 1974. In 1981, I became a medical writer in clinical development, and six years later I became manager of medical communications services.

Tare:
I knew early that research was my real love. My career has taken me to places such as Arnold Levine’s lab at Princeton and Allen Goldstein’s lab at the George Washington University Medical Center, and I began to pick up techniques and expertise in cell biology and biochemistry. Since 1983, I’ve been in inflammation and autoimmune diseases, where I’m now moving from cell biology into protein biochemistry.

Mattaliano:
I still use my scientific training in my job, especially if you define that as “training for the unexpected.” Much of my job involves translating scientific language for consumers and patients (who have no obligation to know medical science). That means I constantly learning what our scientists do. Scientific training will always be not just a tool, but indeed the very heart of my career as a writer.

Tare:
I’m still using a great deal of what I first learned, and I’m adding to it all the time. As I mentioned, I’m moving more now into protein biochemistry. As I’m learning a new field, there’s a continuum of scientific thinking, meaning I can bring bits of the expertise I’ve acquired over the years into this new endeavor.

Mattaliano:
In the current environment, there may be better opportunities for the BS/MS scientist in certain capacities in the drug industry than for the PhD. Most large companies hire far more individuals with BS and MS degrees than they do PhDs. The PhD scientist can become quite specialized and be less likely to branch out in new directions.

Tare:
Because flexibility is so highly prized in industry, you see more and more BS/MS scientists with business, law, or finance minors.

Mattaliano:
Or frequently they go back to school once they’re here.

Tare:
That can make you tremendously valuable. You can come in and say, “I can do science, and I can manage people, budgets, and timelines.” That can be a big advantage in the job market.

Mattaliano:
As for job satisfaction, much of what I worked on in previous positions has percolated up through the product level, and that’s tremendously rewarding. I’ve had a chance to work on exciting projects with international teams of talented and enthusiastic people.

Tare:
I’ve been part of an international project team involved in the global development of a drug candidate. I did much of the preclinical work and followed it through toxicology, pharmacokinetics, and pharmacodynamics. It was a tremendous awakening. I had not realized what’s involved in the whole process, and I could see exactly where my contributions made a difference.
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Denis Ryono, Ph.D.
Sr. Principal Scientist
Princeton, NJ

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Christa La Clair
Associate Research Scientist
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BS/MS
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Scott Martin
Research Scientist
Wallingford, CT
E n route to a PhD in chemistry at the University of California at Berkeley, Kerren Kalai decided to take her MS and get a job in industry for a while. “Part of it was I became frustrated,” she says. “I didn’t really know why I was pursuing the PhD. I felt I needed to take some time out and evaluate my goals.” Last September, she took a job as development associate in the department of biopharmaceutical characterization and analysis (BCA) at Genetics Institute (GI). That move has given her more of a context for doing science and more of an aim for the future.

As an undergraduate at Cornell, Kalai had met Dotsavi Sogah, who became her mentor and research leader. Emerging with a BA in biology and chemistry, she went straight into a PhD program at UC San Diego. When her lab moved to Berkeley, she followed. “I wish I’d taken some time off after my BA,” she says, “but I did get a great deal out of my graduate experience.”

Although almost everything was new at GI, she felt well prepared. Her background enabled her to absorb information and skills quickly. BCA is responsible for part for developing bioassays used to test promising proteins. Kalai is usually in by 8:30 a.m. and out by around 6:00 p.m. Lab work, including tissue culture, sterile technique, and analytical skills, is a major component of her job. She also spends “a great deal of time” at the computer, compiling and analyzing data. Samples come in from departments ranging from discovery research to manufacturing.

She draws on no skill more often than on written and oral communication. “I write memos, and I am constantly communicating results and other data,” she says. “I also write reports of varying lengths. Every two months, we write reports on what we’ve done since the last reporting period.” She has also given large, formal departmental presentations, which she calls “a really positive experience—people have had some really good comments and suggestions.”

Her weekly lab group meetings call for presentations that are, in her words, “less formal but still expected to be prepared and organized.”

Kalai recommends summer internships for the BS scientist in search of a direction. She decided to add a major in chemistry after a summer at Allied Signal. “We worked in a polymer group,” she says. “I met a lot of chemists and had an opportunity to see what they did every day.” She also recommends getting experience in team situations: “In industry, you rely constantly on others, and they rely on you.”

Asked whether she has a better idea of her ultimate goals in science, Kalai laughs as she says, “Well, I haven’t made a definitive choice between industry or academic science, but now I do feel I want to go back eventually and finish my PhD. Working here has sharpened my appreciation of doing science for a living. I really, really like my work. Whatever path I choose, I know my contributions will be more rewarding because I have more of a context for them now.”

THE SCIENCE UP THERE: AMGEN IN BOULDER

“...continued...
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Senior Clinical Research Associate
Under the supervision of the Director of Clinical Research, you will initiate and monitor clinical studies and assist in the summaries of the studies suitable for IND and NDA submission. Prefers RN with 6+ years related clinical research experience.

Senior/Associate Research Scientists
In our Clinical Chemistry Department, you will plan, conduct, evaluate and propose basic and applied experimentation and product development within a project. Requires BS and 4+ years experience in cell culture and immunassay techniques and knowledge of immuno-chemistry or protein chemistry.

The Associate positions will perform and maintain investigational activities within the confines of defined research programs and objectives. Will execute assigned duties in compliance with G.L.P. Requires BS and 2+ years of the above experience and knowledge of Biology or Medical Lab Sciences.

PROCESS DEVELOPMENT...

Senior & Staff Process Development Scientists
Responsible for the development and optimization of freeze drying cycles for pharmaceutical protein products, including design, analysis and freeze drying microscopy studies. Requires a PhD in Industrial Pharmacy, BioChemical Engineering, or Cryobiology with 4+ years of related experience.

Additional positions will direct, plan, conduct and evaluate complex product development projects to expand future product line. Requires BS in Biology, Chemical or Biochemical Engineering, plus 4 years applicable work experience.

Also seeking individuals responsible for the application of methods in physical biochemistry or protein formulation development and characterization of secondary, tertiary and quaternary structure of recombinant proteins. Requires PhD with 4-6 years relevant experience.

VALIDATION...

Validation Specialist
Controls and directs the Validation documentation system (CSRs and Protocols), maintains the master logs for Validation documents, and designs, develops and administers database applications for tracking documentation. Requires BS plus 3 years related experience, working knowledge of GMPs, and proficient with MS Word, Excel, Paradox, SQL, Oracle, Delphi or Visual Basic and Powerpoint or Graphics software.

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The NIH Predoctoral Intramural Research Training Award (IRTA) provides support for a year-long research training experience in our state-of-the-art laboratories in Bethesda, Maryland. To be considered, you must have graduated from an accredited college or university no more than 12 months prior to starting the fellowship and intend to apply to graduate or medical school within the next year. Awards may be granted for an initial 12-month period and be renewed one time for an additional 12 months, based on satisfactory progress towards matriculation at an accredited graduate or medical school. Upon acceptance to graduate or medical school, you may be eligible for additional NIH training awards.

The experiences you gain at the NIH in this program will be valuable wherever your career takes you. Interested candidates should submit a curriculum vitae, three letters of recommendation emphasizing your research potential, a statement of your research interests and an official copy of your college transcript to the Coordinator of Student Programs, NIH Office of Education. Candidates must be U.S. citizens or permanent residents.

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people. You get more of a sense of where your work falls, get much more of an overall picture. It's not just make a compound, send it off, get no feedback—you can see the entire process.

We're working in the area of arthritis, which is very exciting because of course a lot of work still needs to be done in solving the arthritis puzzle. It affects almost everyone over 30 in some form. We're looking for ways to slow it down, prevent it, or even cure it. Such unanswered questions make this job really great.

If you want to be an organic chemist, learn the analytical skills—HPLC, column chromatography, NMR, and mass spectroscopy. Get as much hands-on work in those areas as you can, including running the actual experiments and interpreting the results—the less time you need to be trained, the better, and the more you know those skills, the more attractive you'll be.

Making new drugs is a great job. What I like is being involved in all aspects of a drug's development, being right at the forefront of learning about and discovering new cures for arthritis. It's also great to be able to ride your bike to work in the morning and see those mountains clear and sharp.

Mark Zukowski

director

inflammation research

Some of our BS/MS scientists view their jobs as careers, some as stepping stones to something else—either way, it's a good vantage point from which to learn about Amgen, the business end of science, the lab environment. Some stay and grow with the organization, advancing through research associate and associate scientist levels. A rare few have even broken through into the ranks of the research scientists. Some have moved to law, technical writing, and clinical research.

Biologists and chemists here work hand in hand. We don't have departments so much as functional groups. Within biology, we have the molecular biologists, who do cloning and expression in various host vector systems. In cell biology, the work is with cell lines, monocyes, macrophages, and in vitro assays. Our protein chemists isolate the activity of both natural and recombinant proteins, working closely with cell biologists, who do the assays on fractions. Our quantitative biologists come from diverse backgrounds. There's a lot of robotics there, much high-throughput screening, robotic assay work and manual secondary assays. Our pharmacologists are primarily concerned with in vivo studies and animal modeling.

In a CV, I look for good technical background, a solid education, of course, and some lab experience. I try to match positions to experience, so I look closely at each candidate's list of expertise. My interest picks up if I see experience in PCR, hybridization, cloning, and expression in more than one cell type. Those are very good skill sets right now. If they've worked on an interesting project, that's also of interest—better yet if they can explain that project and their own role in it. I want people who can understand the science they're doing, take a personal interest.

The interview is critical. I look for enthusiasm, energy, evidence that here we have a self-starter, truly interested in the science and able to talk about it.

David Trollinger

associate scientist

biology

I not only run the DNA sequencing unit but also have my own project, looking at posttranslational modification of proteins. We're looking at a molecule that trimerizes in its native form. I was able to go in, find the gene, express it, do the assay, and see the protein trimerizing.

I'm not considering any further degrees. It makes more sense to get deeper into the work I'm doing here. I already have more than the equivalent of an MS or a PhD in my work experience. Anyway, rewards at this company are based not on your degree but on the extent of your contribution.

The topics I hear discussed most frequently are interaction of proteins, specifically screening them in yeast 2-hybrid systems; phage display; and of course genome screening, which is still a hot issue, very targeted. Now we're looking at differences between resting and activated cell types. DNA sequencing is still vital. You hear a lot about electronic subtraction, and differential display. PCR and CDNA cloning are now at a very sophisticated level. People with lab experience in those areas have some great opportunities right now.

I really like the small team model. You have true multidisciplinary exposure here. I like being able to go down the hall and find the biochemist, protein chemist, or other scientist who knows the answer to my question.

Those who get an internship at the bachelor level, or stop between BS and MS and get work experience, are doing something that will help them later. I've interviewed lots of bright kids with advanced degrees, but those who went out and got their feet wet, learned what industrial science is all about and then went back to school, those people have a real advantage.

Dave Tillett

associate director

clinical manufacturing

While in discovery research you generally need a PhD to advance to the top, that's not necessarily true in manufacturing. With a strong technical background and good people skills, there really are no limitations. In our manufacturing group, about two thirds to three quarters have BS degrees, not necessarily in the life sciences, though predominately that.

The ideal job candidate would have some background in microbiology, cell biology, biochemistry, and analytical chemistry, with a good aptitude for mechanical things—and know how to write. Writing skills are important; there is a significant amount of time spent writing operating procedures. Also, experience in project management catches my eye.

A good cross-training in biology and chemistry is important. But the interview is the real key. We really try to get people who can make good judgments, admittedly a hard thing to bring out in an interview. It's also hard to assess a person's technical ability right out of school—a 4.0 GPA is not necessarily the right person to hire. You want to see someone who has performed well, but also someone who has a broad and balanced background.

The job is different every day. On some days you work on the process end, making solutions, operating a fermenter, a chromatography column and/or ultrafiltration skids. Other days, you write documents. On still other days, you'll write procedures. Troubleshooting wherever and whenever it's needed is a big part of the job.

Our expectations for people are pretty high, going well beyond simply making the product. You have to understand the regulatory environment we're working in, and you have to understand every aspect of production and take responsibility for it. Here, pretty much everyone is trained to be able to perform all parts of the operation.

David Paul

manufacturing associate

clinical manufacturing

Clinical manufacturing is different from commercial manufacturing in that we manufacture large-scale proteins for the pre-
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POSTDOCTORAL FELLOWSHIPS

Molecular Sciences
Will study nuclear receptor mechanism of action. Requires Ph.D. in Molecular Biology/Cell Biology or a related area. Prior experience in the analysis of differential gene expression is highly desirable. Refer to Job #ASC2496M.

Human Genetics
Will assist in rigorous validation of known mutation detection techniques and in the development of novel high throughput methods for mutation scanning. Prior experience in disease gene identification or mutation detection techniques is highly desirable. Refer to Job #ASC2496EL on all resumes.

Molecular Endocrinology
Will isolate/characterize the function and regulation of proteins involved in the signal transduction process with an emphasis on intracellular calcium handling. Will design and conduct experiments to study this process in physiologic and pathophysiologic instances. Requires a Ph.D. in Biochemical Pharmacology, Biochemistry, or Molecular Biology. Experience in protein isolation, purification, single cell isolation, cell culture, calcium imaging, cDNA cloning and expression preferred. Refer to Job #ASC2496PG on all resumes.

Virology
Will conduct research on the inhibition of host-cell apoptosis by viruses of medical interest; investigate whether proteins blocking host-cell apoptosis are produced by these viruses; identify the proteins involved and their mechanisms of action; and plan/execute these studies in collaboration with other members of the research team. Requires recent Ph.D. in Cellular or Molecular Biology, Biochemistry, or Microbiology and skills in standard techniques of molecular biology and mammalian cell culture. Experience in the study of mechanisms of apoptosis is desirable. Refer to Job #ASC2496BH on all resumes.

RESEARCH SCIENTISTS

Genomics
One opening is available for an individual to perform molecular biological techniques in support of experiments in genetics and polymorphism detection. An additional opening is available for an individual to carry out high-throughput PCR and genotyping of patient DNA samples, manage DNA stocks, and run an ABI377 with appropriate software. Another opening requires basic to moderately complex molecular techniques such as PCR, membrane hybridization, genomic and cDNA library construction and cloning. These positions require a BS in Biology, Molecular Biology, Genetics or a related area with 1 year relevant experience and basic computer skills for data analysis. Refer to Job #ASC2496KS on all resumes.

Molecular Sciences
Openings available for individuals to purify/characterize proteins from nanogram to gram quantities. Duties include methods development for analytical pilot scale chromatography and the biochemical characterization of proteins. Additional openings are available to assist in the design, subcloning and generation of recombinant plasmids for the expression and characterization of heterologous proteins in E. coli, recombinant baculovirus and eukaryotic cell expression systems. Other openings are available for individuals to be responsible for DNA cloning and analysis, cDNA library construction/screening and tissue culture work. Positions require a BS or MS in Biochemistry, Molecular Biology or a related area with 1-5 years experience in the specific areas noted above. Refer to Job #ASC2496ML on all resumes.

Cellular Sciences
Will perform immunochemical, biochemical, histological and molecular biological techniques in support of experiments in tissue distribution of target genes and proteins. Requires BS, MS or Ph.D. in a Biological Science with minimum 5 years relevant experience. Refer to Job #ASC2496JH on all resumes.

Molecular Biochemistry
Individuals needed to distribute compounds, analyze data and develop/conduct enzyme, receptor and protein/protein binding assays to screen for inhibitors of therapeutic targets. Positions require a BA/BS or MS in a Biological Science discipline with 1-4 years relevant experience. Refer to Job #ASC2496BK on all resumes.

Receptor Biochemistry
One opening is available for an individual with experience in assay automation including programming of liquid handling systems (Tecan, Packard, Beckman) and arm based large scale robotics systems (HP Orca, Zymark). Additional openings are available for individuals to design, develop, and conduct ligand binding assays, immunoassays, reporter gene assays, and fluorescent dye based assay for G-protein coupled receptors. Requires BA/BS or MS in Biology, Biochemistry, Pharmacology or related area. Refer to Job #ASC2496DS on all resumes.

Cancer Biology
Will evaluate the in vitro toxicity of a variety of experimental compounds to human cells (leukemic, tumor and primary normal). Requires BS/MS in a Biological Science or chemical discipline with 2 years relevant experience. Refer to Job #ASC2496RD on all resumes.

Metabolic Diseases
Several openings available for individuals who will be part of a team whose goal is discovering drugs for the treatment of diabetes, obesity, and related metabolic disorders. Positions require BS in Biochemistry, Pharmacology, or related laboratory experience. An individual is needed to investigate the effect of drug candidates on the expression of relevant genes. An individual is needed to use biochemical techniques to study metabolic pathways in isolated tissues and cultured cells. An individual is needed to investigate the effect of compounds in vivo and ex vivo in animal models. This includes animal handling, dosing, bleeding, small animal surgery, use of radioisotopes, and biochemical techniques. Refer to Job #ASC2496SJ on all resumes.

Diversity Sciences/Chemistry
Will perform automated synthesis and characterization of chemical libraries using Advanced Chemtech and other robotic equipment. Will also support the Diversity Sciences Department through the optimization of automated solid phase synthesis techniques, HPLC methods and library storage and dispensation. Requires BA/BS in Chemistry. Refer to Job #ASC2496FS on all resumes.

Virology (Several Openings)
One opening will design and implement assay systems that provide quantitation of virus replication and/or events that represent distinct stages of viral replication. Another opening is available for individuals to develop cell-based assay methods for the verification and optimization of the antiviral activity of lead compounds against a variety of medically important viruses. A third opening is available for an individual to identify/evaluate/develop therapeutics for patients chronically infected with hepatitis B virus (HBV). These positions require a BS/MS in a Biological Science with a minimum of 2 years relevant research experience. Refer to Job #ASC2496KB on all resumes.

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As a rapidly growing, publicly held genomics company with significant medical and academic affiliations and pharmaceutical partnerships with Hoffman-La Roche, Eli Lilly, Wyeth-Ayerst, and Astra, Millennium is clearly poised to become the world’s leader in gene-based drug discovery.

**MOLECULAR BIOLOGY**

**Postdoctoral Positions:** We have a variety of positions available for Ph.D’s with 0 - 2 years’ experience. Opportunities exist in specific disease areas including obesity, atherosclerosis, CNS, oncology and viral vectors. We boast a 2 year program with eligibility for extension. Publications are encouraged.

**Research Associates:** A variety of opportunities exist for BS/MS graduates with 2 + years’ experience.

**POSITIONAL CLONING**

**Research Associate:** Join a group focused on the positional cloning of disease genes. Responsibilities include genetic and physical mapping, gene identification and mutation detection. BS is required.

**Mutation Detection:** This Research Associate will develop and utilize mutation detection methods in the evaluation of candidate disease genes. BS is required.

**MOUSE MODELS**

**Postdoctoral Position:** We are looking for Ph.D’s with experience in the generation and analysis of mouse models.

**Cell Culture:** This Research Associate will support embryonic stem cell culture activities. A BS and 2 years’ cell culture experience required.

**Histology:** This Research Associate will perform techniques of in situ hybridization and immunohistochemistry in experimental tissues.

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**Associate Scientist:** Lead a group focused on the genetic mapping of human diseases. Primary responsibility for marker evaluation, isolating new microsatellites and innovating systems for conventional genotyping on key genomic regions as well as contributing to data analysis.

**Research Associate:** Participate in the marker evaluation process as part of a high-throughput production team. You will design and perform experiments and analyze data in a team-oriented environment. A BS, PCR and computer proficiency a must.

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Millennium seeks and cultivates a diverse workforce through equal opportunity employment and a collaborative team approach.
At Amgen's Lake Centre facility, we met five MS-level scientists—Stephanie Hartsel of DNA and peptide synthesis, Christine Ko of biology, John Miller of chemistry, Dave Smiley of process development, and Julia Tseng of biology—to discuss the role of BS and MS scientists in the modern biopharmaceutical company.

Ko: I love doing science. In my present job, at times I wish I had a PhD, which probably would get me further.

Tseng: I got married while I was doing my master's. Having a family and trying to do an advanced degree is a pretty stressful combination. Once the children were grown, I really missed the science and wanted to get back to it.

Hartsel: And once you're making money with a real job, it's really hard to go back to school and be a poor student again.

Miller: My associate-level position is one in which I can grow and progress at my own pace. I considered getting a PhD, but when I looked at the job market, it didn't seem like necessarily the best decision.

Smiley: You're often more flexible without a PhD. In some cases, you can get a job more easily—and you can move into other jobs.

Miller: Job transitions open up for BS and MS people that often aren't there for PhDs. Since you're not as rigidly focused, your career can take some natural progressions.

Hartsel: While I haven't considered going back for the PhD, I do plan to get an MBA. Amgen encourages that kind of move, and people who are good in both science and management are very valuable.

Tseng: Lots of people here are doing that—both MBAs and law degrees.

Science at the heights (left to right): Dave Smiley, Julia Tseng, Christine Ko, Stephanie Hartsel, John Miller

Smiley: I use many different skills and technologies on the job. I use HPLC and other analytical techniques to understand the fermentation's progress. We work shifts to keep the tanks running.

Miller: In chemistry, we do many of the same things as Dave mentioned. There's a big emphasis on isolating and purifying chemical compounds.

Tseng: In cell biology, we do tissue culture, monoclonal antibody work, cell adhesion work, in vitro assays.

Hartsel: The DNA technology group is responsible for providing DNA to all Amgen researchers, so understanding the biology is important. Often, novel synthetic chemistry is a result of reading a biological study.

Miller: The satisfaction of my job is very hands-on, very concrete. You produce a chemical substance that may or may not go on to do something later. Besides, it's intellectually very stimulating.

Smiley: I like the troubleshooting when things go wrong. Trying to understand a problem and solving it quickly.

Tseng: The company here is still small enough so that we can feel a connection to the process and the product.

Ko: I like the mental challenge. In discovery research, you're faced with a disease, and you have to figure out how to attack it, what molecule to use, how to purify that molecule. Another challenge is getting used to switching directions, being flexible. You learn a lot. There aren't any typical days.
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Egalitarian place. That's the way people tend to describe the University of Colorado at Boulder. Mark Winey, assistant professor and head of the graduate program in the department of molecular, cellular, and developmental biology, used the phrase. So did Estelle Steiner, a fourth-year PhD candidate in molecular biology in Winey's lab. Collegiality and equality among faculty and graduate students characterizes Colorado as much as good science does.

The program offers what Winey calls "the advantage of being relatively small": 60 students total, with entering classes six to nine strong out of an applicant pool of around 200 per year. Course work and rotations make up the first year, at the end of which students choose a thesis lab from among more than 40 research laboratories in the department and the division of biochemistry.

"We have a diversity of research opportunities here," Winey says, "including our traditional strength in RNA science, cell biology, and developmental biology, bolstered greatly by the advent of transgenic mouse technology. We have a mass spectroscopy lab, high-energy NMR, x-ray crystallography, confocal, standard electron, and high-voltage electronic microscopy." Among the more exciting research areas, Winey names developmental biology, signal transduction, and genomics.

In applicants, Winey looks for an excellent academic record with research experience—"In the last few years," he says, "we have not admitted anybody without it." A strong letter from the research advisor can overcome defects in the candidate's background. Strong communication skills are essential: "Regardless of what they end up doing," Winey says, "PhD scientists will have to communicate—when they teach, when they collaborate, when they apply for grants."

After her BS, Steiner worked for two years in a research lab, which she says "helped me realize why I wanted to keep going in science." She attended a graduate student-run symposium at Colorado and was impressed: "The students were obviously playing a big role in their own education." Graduate students sit on the committee overseeing graduate studies, help recruit new graduate students, help decide who is accepted, invite speakers for seminars, and attend faculty meetings.

Her lab is studying spindle pole body duplication in Saccharomyces cerevisiae. She is focusing on a protein kinase involved both in duplication and in the mitotic checkpoint, and she is now...
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studying its activity in the cell cycle and how that activity is regulated. That entails kinase assays and mass spectroscopy, subcloning for mutagenesis, and some genetics.

Steiner enjoys the crossover of disciplines and the readiness of her lab mates to help. When asked about her future goals, she replies, “All of us are geared toward academic science, but we know how insecure both academic and industrial employment is at the moment, so we all have our eyes open.” Most of all, she enjoys that egalitarianism we mentioned. “Grad school is a stressful time,” she says, “and it’s nice to have people you can share that with.”

"W

We want people who have done good, original work on a research project and can explain that project to me with that fire in their eyes. If an interviewee is pulling out confocal microscopy photos, saying, ‘Look what I did,’ I’ll catch the excitement.”

Arthur Gutierrez-Hartmann, director of the medical scientist training program at the University of Colorado Health Sciences Center (UCHSC), is speaking about his MD/PhD program, which emphasizes crossover between hard science and medical science, human support during the tough transitions, and what Gutierrez-Hartmann calls “an uninhibited enthusiasm about the elegance of biology.”

Two years ago the program, which comprises faculty at both UCHSC and the University of Colorado at Boulder, obtained an NIH grant and is now a bona fide MSTP. The total number of MD/PhDs is in the 30s, with four fully funded candidates accepted each year. The program is looking for solid GPAs, strong MCATs, substantive and exemplary lab experience, and leadership.

Students must complete and defend their hard-science thesis before entering the clinics. (That guards against the well known thesis letdown.) Applicants interview separately at the medical school, which defers their time in the clinic until they have completed their graduate course work. Most students do research rotations in their first two summers. Medical and graduate course work and research thesis take an average of five and a half to six years, after which students return to the medical school for their core rotations. “We provide a flexible clinical schedule,” Gutierrez-Hartmann says, “allowing students to complete the clinical requirement in fifteen to 24 months.”

A clinical transition committee supports students through the hardest transitions for the MD/PhD: between thesis and clinic and clinic and internship. Hard science and medicine are two different cultures: the former encourages constant questioning, while the latter encourages more respect for authority and results in a more defined hierarchy. “We teach them appropriate clinical behavior,” Gutierrez-Hartmann says, “beginning when they’re finishing their thesis, to prepare them for the specific nuances and the traditional culture of the medical environment.” Later, when students begin to apply for internships, the committee proactively mentors them on career design, selection of postdocs and fellowships, and pathways to their favored specialties.

Gutierrez-Hartmann worries that with the growing importance of HMOs in the health care scheme, medical schools may become trade schools. “If all we’re going to have is gatekeepers, but not people at the forefront of discovery,” he says, “who’s going to teach the next generation of doctors? Who’s going to teach, not the clinical art, but the art of medical research?” Clearly, he wants to keep the enthusiasm for both arts burning in his students: “I’ve still got it, and all my colleagues have got it. The best we can do is pass it on.”

In 1973, Washington University decided to move away from department-based graduate education and established the division of biology and biomedical sciences. The result is an environment in which students have ultimate flexibility. Each of the faculty members in the division has “dual citizenship,” according to Jeffrey I. Gordon, head of the department of molecular biology and pharmacology and chair of the executive council overseeing the division. “Each is a member of a department, and each is also a member of an interdepartmental, interdisciplinary divisional program.” Thanks to this structure, students can do a dissertation with any of 300 faculty in 24 departments throughout the university. Clinical faculty are involved in training PhD and MD/PhD candidates, and there is close scientific interchange between clinical and preclinical departments.

Each of the eleven programs in the division has a scientific focus reflecting the interests of the participating faculty. Because of the division structure, each program brings together a larger community of scholars than a single department could.

Students select the program they enroll in based on their own interests. Students take a year of course work, during which time they also rotate through three laboratories. Rotations can be done in the lab of any faculty member in that program. Juan J. Martinez, a PhD candidate in molecular biology, remembers his early days as a student: “They gave us a book listing the various faculty and their research interests. As I leafed through it, I found many labs doing fascinating things. I contacted them, and the faculty responded with enthusiasm.” After students complete their course work and rotations, they select a thesis lab, usually by the end of the second year.

The environment at Washington University for graduate training in the biological and biomedical sciences is very attractive to prospective students. Stacia Peiffer, a PhD candidate in molecular genetics in the department of surgery, applied because she heard it was a “student-friendly, open program.” John Seavitt, a PhD candidate in immunology, applied because he was impressed with the availability of financial support and the “receptiveness of students and faculty” during his interview. Martinez was drawn by the enthusiasm and openness to collaboration he saw: “It seemed to be a great place to train.”

All report they enjoy the bracing intellectual atmosphere. Peiffer likes her freedom to “talk with anyone, get up to speed on almost any aspect of science, if you’re willing to seek out the right people.” Seavitt enjoys...
Those are the words of a student who recently chose the Division of Biology and Biomedical Sciences at Washington University for graduate training. Even a short visit made it clear that graduate study at Washington University takes place in an atmosphere of unobstructed collaboration and collegial support. The 11 flexible, interdepartmental and interdisciplinary programs will allow you to follow your scientific interests wherever they lead. And, over 300 faculty members are available to provide the direction you need as you begin your career as a scientist. For more information and an application, contact us at: 1-800-852-9074, or e-mail: dbbs_office@wums.wustl.edu. Our WWW home page address is: http://medinfo.wustl.edu/dbbs.
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Cincinnati is a cultural and recreational delight. Situated on wooded hills along the Ohio river, this beautiful and friendly city of 1.5 million offers a wide variety of activities and events. The University of Cincinnati with its 16 colleges and 36,000 students (including 6,000 graduate students) is only ten minutes from the vibrant downtown area and riverfront. Graduate students in the Biomedical Sciences have the best of both worlds: the resources of a major university combined with the excellent and innovative research and teaching resources of an outstanding and much smaller College of Medicine.

Graduate programs at the University of Cincinnati Medical College currently have over 400 Masters and Doctoral students in training programs with excellent research opportunities, and ranks in the top 10th percentile in size nationally. Faculty in the College of Medicine and associated Children's Hospital Medical Center have over 75 million research dollars, and a wide variety of research interests that provide graduate students exceptional opportunities for unique research projects and career training. Over 200 renowned scientists are potential graduate student mentors. Doctoral programs provide graduate students with paid tuition and fees, and up to $16,500 in an annual stipend.

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the floor meetings in which students and faculty from immunology and pathology discuss contemporary data. Martinez likes his Tuesday morning lab meetings, at which he often gives presentations: “It’s the best way to get others involved in what I’m doing, and to learn how to take constructive, positive criticism.”

Students in the division also experience the interdisciplinary aspects of contemporary biological research. For example, the developmental biology program draws faculty from departments such as biology, pharmacology, genetics, and anatomy and neurobiology. This interplay allows students to employ molecular genetics in understanding key developmental processes from yeast to plants to human beings. The Lucille P. Markey Special Emphasis Pathway in Human Pathobiology introduces PhD students to the study of human disease. Because the university has been at the forefront of developing research partnerships with industry, students are exposed to applied research, offering an advantage to young scientists interested in careers outside academia. Perhaps the ultimate in interdisciplinary programs at Washington University is the widely respected MD/PhD program, which prepares physician-scientists for careers in research and clinical medicine.

Jeffrey Sich, director of admissions in the division of biology and biomedical sciences, says, “Breaking down barriers has been a part of the culture at Washington University for almost a century. Because of its unrivaled flexibility and interdisciplinary nature, students in our division begin their graduate training with few barriers in their way.”

New York University (NYU) is the largest private university in the United States, with about 50,000 students. The Sackler Institute of Graduate Biomedical Sciences, the umbrella organization for all the doctoral programs for the NYU school of medicine, admits between 35 and 40 students per year to doctoral programs in biochemistry, cell biology, environmental medicine, microbiology, parasitology, pathology, pharmacology, and physiology. About 175 PhD candidates join about 80 MD/PhD students and 600 medical students in a program affording students great freedom to cross departmental and disciplinary boundaries. At Christina’s at Second Avenue and 33rd Street, we met Medeva Ghee, a fifth-year PhD student; David Hersh, a fourth-year MD/PhD; and Robin Stephens, a second-year PhD. Stephens and Hersh are also president and vice president, respectively, of the Sackler student council, actively involved in enhancing their peers’ scientific and social opportunities.

Stephens: I am an immunologist, and I would like to study negative regulation of the immune response.

Ghee: I’m studying gene regulation, specifically how transcription factors interact with the tyrosine hydroxylase gene. It’s a fun topic with potential clinical significance.

Hersh: My desire to pursue medicine came first. Research during my undergraduate summers sparked my interest, and so I spent a year after graduation working as a technician at a lab at NYU. I found that I enjoyed the intellectual challenge and lifestyle enough to include it in my career goals.

Ghee: The great thing here is the diversity of research. The range of programs here and at the medical center broadens your opportunities for collaboration. If you’re in biochemistry, you can speak with someone in neuroscience and microbiology. Somewhere you’ll find someone knowledgeable about your interests.

Hersh: When I began graduate studies, I wasn’t as aggressive in using those resources as I should have been. I had to learn how open it was and be comfortable in seeking help.

Stephens: At NYU the rules are flexible, especially in Sackler’s open program. There haven’t been any rigid rules about rotations, so students can make sensible decisions across department and disciplinary lines and with their own timing based on their own goals.

Hersh: The MD/PhD program is very supportive. We have a lot of help in making our big decisions, which is good, because the transitions are difficult.

Ghee: Joel Oppenheim [associate dean for graduate studies and director of the Sackler Institute of Graduate Biomedical Sciences] has really helped me in finding a direction. My lab is great, but I was left very much on my own, to find my own thesis project and design my own experiments. Initially, it was rough—adjusting to New York after life in Virginia was rough too.

Stephens: When Dr. Oppenheim came, he saw a big divide between PhDs and MD/PhDs. One of his first moves was to involve them in the Sackler Institute from the start. Everyone’s invited, everyone’s included. We’re getting more integrated all the time, not only between PhDs and MD/PhDs but also among the different departments. And because it’s not always easy to stay coherent with classmates and meet incoming students, we’re trying to foster social support.

Ghee: The student council is a good source of job information. They put on career fairs and seminars on topics such as “What Can You Be with a PhD?” They’ve brought in people from different professions, exploring alternative careers in science. That’s important to me, because although I really want to do research, I don’t necessarily want to limit my choices. My near goal is doing a postdoc, preferably in Paris. But I’m also really interested in a research career, perhaps with a cross-degree in business.

Hersh: Everyone has told me that a true 50/50 split between research and clinical medicine is nearly impossible. So I assume that I will eventually have to choose one to focus on, but that decision has to wait until I complete my clinical residency. I’m interested in the field of infectious disease, in particular pediatric infectious disease. I can see myself working for the Centers for Disease Control someday.

Stephens: I want to be a professor. Wish me luck getting a job. I want to do research, and on top of that, I want to teach. I think that teaching should really be taken seriously and merit in the classroom rewarded.

Ghee: With the job market so competitive now, people interested in science should get to know as much as they can about the professional life of scientists. Understand the highs and the lows.

Hersh: Find a good mentor, and find a program like this one, with supportive people.

Stephens: What you’re working so hard for are those moments when you read, talk, and do experiments. It comes together, and you’ve created something that was not there before. Just like a work of art.
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PART III: EUROPEAN EMPLOYMENT FOR BSc AND MSc SCIENTISTS

In a poll published this March, the Daily Telegraph asked UK scientists two questions: were career opportunities better or worse than when they started working, and did they recommend a career in science to interested students? Respondents showed the paradox underlying European science when 70 percent agreed that prospects were worse yet 88 percent still said that they would advise students to "seek a career in science rather than elsewhere."

Job-seekers face a challenging market. As one scientist told us, "It wouldn't be responsible to pretend that the road for BSc and MSc scientists is easy at the moment—but if you're good and prepared to be flexible, the career is there for you." Below, two experts discuss the current state of European science education and employment.

Sandra Thomas
research fellow
science policy research unit
University of Sussex

The European employment market for BSc and MSc scientists is very competitive, but there are definitely opportunities and areas of need. Large companies have undergone the same kinds of structural changes that they have undergone in the States. And although the number of smaller firms (biotech firms, for example) is growing, that sector is nowhere near as strong as it is in the States, and it does not yet offer a comparably large base of employment.

Each year, the large pharmaceutical firms take in a number of BSc and MSc degree holders. The BSc scientists will receive training within the firm and work their way up into different departments, with some going back to school. MSc scientists are more likely to start at a higher level and may achieve project management status in some sectors. To have an edge in the job market, you appear to need three things. The first is youth, the second is good lab skills, and the third is an adjunct of the second: lab skills in an area of critical interest to the company (say, for example, genomics or bioinformatics—preferably both).

Recent reports suggest there is a gap between skills offered by higher education in Europe and the demand from European industry. Key areas of need include engineering, fermentation, immunology, and information technology. One sees needs in bioinformatics, genomics (some firms, such as SmithKline Beecham, are making a big commitment), and combinatorial chemistry. Certainly there are opportunities for scientists to develop careers in the drug approval process, and there is some demand for scientists to advise patent firms in relation to biotech. These opportunities weren't there five years ago.

I would advise job candidates to make the most of their early years of career development. If you can, get lab experience. Having experience in a US lab is still seen as a considerable advantage, as it has been for some time. Experience in public sector labs is also of value. If you've worked at a good chromosome mapping research group and you have a good range of skills, you're likely to be quite attractive.

Richard Lathe
research professor
Centre for Genome Research
University of Edinburgh

(Professor Lathe gave his comments via a phone interview.)

The Centre for Genome Research provides PhD training in our own research areas, namely the understanding of how the genome makes the organism, principally using transgenic technology. Our program provides a small number of graduates with hands-on access to transgenic technology both via microinjection and via gene targeting in ES cells. Our research strengths combine top-class molecular biology with genetic modification in experimental animals, together with sophisticated physiological analyses. Because doctoral courses are research based, new technology is rapidly imported.

Doctoral courses in the UK do not normally involve a formal taught component. There are no set lectures as there are in the United States or in master's courses (though this is set to change), but students work in research groups and attend seminars presented by internal and external speakers.

Backgrounds for our applicants are usually a 2i or 1 class BSc degree from a recognized UK university in a pertinent subject, e.g., genetics, zoology, biochemistry, pharmacology, and physiology. Applicants include those in possession of the attributes above, as well as individuals from the UK or abroad who have an inappropriate background or grades. Some of these are encouraged to pursue MSc studies before progressing to PhD training.

I foresee a big future at the interface between biology/medicine and computing/artificial intelligence. As for human skills, I would mention innate intelligence and the ability to seek out, ask for, and take advice and assistance from others. Other essential skills include computer experience and some facility in languages. This latter, while somewhat less important in the UK, is especially important in mainland Europe.

Regarding what makes students attractive, I feel the main element is being equipped in areas of current development and interest. Prospects for archaeology and philology graduates are limited; go for robotics and neuroscience.
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If you are interested in working temporarily or long term in AUSTRALIA and you meet certain criteria under the Australian immigration laws, we can assist you in obtaining the visa required to gain entry into Australia. You may be eligible to live and work in Australia for up to four years or permanently, depending on your qualifications. Degreed scientists have excellent job opportunities "down under" and we can help get you there! Contact Ken Onesty at Australian Gateways, Inc., 210 Little Falls St., Ste. 201, Falls Church, VA 22046, (703) 538-5344, e-mail at compuserve 104666,2601.

AMERICAN UNIVERSITY OF BEIRUT
Beirut, Lebanon
FACULTY OF MEDICINE
Academic Appointments

Department of Physiology: The Department of Physiology at the American University of Beirut invites applications for a faculty position at the Associate or Full Professor level in Neurophysiology. Applicants must demonstrate teaching experience and should have independent research expertise in the field of neurophysiology.

Department of Biochemistry: The Department of Biochemistry at the American University of Beirut invites applications for the position of Professor and Chair of the Department of Biochemistry. The candidate must have a Ph.D. or M.D. with training in biochemistry, and have an outstanding record of scientific accomplishments, research funding, graduate and medical education, and evidence of administrative and leadership ability.

For confidential consideration, please submit a comprehensive curriculum vitae and cover letter to:
Dean, Faculty of Medicine and Medical Center
American University of Beirut
850 Third Avenue, 18th Floor
New York, NY 10022-6297
DEADLINE FOR RECEIPT OF APPLICATIONS IS NOVEMBER 15, 1996.
The American University of Beirut is an Affirmative Action/Equal Opportunity Employer.

U.S. passports are presently invalid for travel to, in or through Lebanon, and for residence in Lebanon, by order of the Department of State, and therefore applications from individuals who would travel to or reside in Lebanon on a U.S. passport cannot at this time be considered.

SmithKline Beecham, one of the world’s leading pharmaceutical companies, is dedicated to the discovery and development of drugs which promote human health. The Cardiac Research Center, which is located near Rennes, in Western France, is fully integrated in the worldwide R & D organisation and is engaged in basic research and drug discovery programmes aimed at identifying novel therapeutics for cardiac diseases. To expand our expertise, we have immediate opening for the following positions:

Assistant/associate Director in Molecular Biology

Leading a group of scientists engaged in molecular biological research aimed at discovering novel, genomically derived gene targets for novel drug development, the incumbent will be responsible for initiation and management of all aspects of this research including cloning, expression, localization and other molecular biology related techniques. The position requires intense interactions with SmithKline Beecham transnational functions of the Genomic initiatives, biopharmaceutics, pharmacology and other disciplines.

Qualified candidates must hold a PhD degree in Molecular Biology, Cellular Biology, or related fields with 5-10 years of experience and a strong track record of publication of high quality peer reviewed papers. Published work will demonstrate strong experience in technologies such as DNA and RNA isolation and processing, cloning, Southern, Northern, sequencing, constructs, differential gene expression, in situ hybridization, two hybrid system, phage display methods and experience in yeast/mammalian cell culture. Experience in mouse genetics, transgenic, or knockout models of diseases would be advantageous. Excellent oral and written presentation skills in English are essential, along with good knowledge of computer-based scientific applications. Knowledge of French is desirable but not essential.

Investigator in Molecular Biology

As a core contributor in laboratory research, the incumbent will have responsibility for identifying molecular targets and/or new technical approaches necessary for the development of exploratory research and feasibility studies.

Qualified candidates must hold a PhD in Molecular Biology, Cellular Biology, or related fields with 2-3 years of postdoctoral experience and published results in high quality peer reviewed journals. Published work will demonstrate practical experience in technologies such as cloning, RT-PCR, Southern blots, Northern blots, sequencing constructs, cell transfection, differential gene expression, and experience in yeast/mammalian cell culture. Experience in biocomputing tools to facilitate the discovery of novel genes would be advantageous. Superior oral and written presentation skills in English are a requirement. Knowledge of French is useful but not essential.

Applicants should send a letter of interest, CV, photo and the names of two referees to SmithKline Beecham, Service recrutement, 6 Esplanade Charles de Gaulle 92731 Nanterre cedex, France.
DIRECTOR OF THE CENTER OF BIOENGINEERING
University of Washington

The University of Washington seeks a candidate for the position of Director of the Center for Bioengineering. The occupant will hold a TENURED PROFESSORIAL rank in the Center for Bioengineering, which is in both the College of Engineering and the School of Medicine. The Director will lead actively to further develop the research and teaching programs of the Center. The Center for Bioengineering has active research programs in biomaterials, biomechanics, cellular biology, biomedical imaging, and biomedical instrumentation. Its graduate program serves more than 100 students of whom the majority is pursuing a Ph.D. degree. The undergraduate program serves a small number of superb students who intend to enter either M.D. or M.D./Ph.D. programs. The Center has 15 core faculty, 35 adjunct faculty, and 20 affiliate faculty. The Center for Bioengineering enjoys intensive collaborative ties with colleagues in the School of Medicine and the College of Engineering.

Nominations will be submitted to:

Professor Yongmin Kim, Chair
Bioengineering Director Search Committee
Department of Electrical Engineering
University of Washington
Box 354000
Seattle, WA 98195-2500

Review of applications will begin on September 1, 1996, and applications will be received until the position is filled. Applications should include a curriculum vitae, a statement of interests and goals, and the names of five references.

The University of Washington is an equal opportunity/affirmative action employer.

ENVIRONMENTAL SCIENTIST: Pending final budget approval, Duke University seeks a teacher/scholar to develop and direct an undergraduate Environmental Science and Policy program that will provide an integrative ecological perspective within a liberal arts setting. This is a tenured appointment that offers a competitive salary and excellent benefits. Candidates should have the Ph.D. degree, postdoctoral experience, a record of teaching excellence, an active research agenda, and a strong commitment to undergraduate research. A background in geographical, or life science background is needed with an interdisciplinary orientation that permits developing courses, projects, and internships appropriate to environmental concerns. A strong interest in research and teaching technology is helpful. Applicants should send a letter of application, curriculum vitae, evidence of teaching effectiveness, a list of courses wanted, three sets of teaching addresses, and telephone numbers of three references. Mail to: Ron Troyer, Dean, College of Arts and Sciences, Duke University, Durham, NC 27708. Review will begin October 1, 1996. Duke University is an Equal Opportunity/Affirmative Action Employer.

Dorothy Otto Kennedy Endowed Professor in Pharmaceutical Sciences. The Washington State University College of Pharmacy, Department of Pharmaceutical Sciences is inviting applications and/or nominations for an annual, tenured appointment at the M.D., Ph.D. and/or, or M.D. level and research emphasis in immunology/immuno-toxicology is required with desired experience in the effects of alcohol on the immune system. The candidate must have a strong extramurally funded research program and a national/international reputation. Duties include sustaining an independent extramurally funded research program, taking an active role in the development of an alcohol and immunology research core in the College and the interdepartmental Alcohol and Drug Abuse Program, teaching and directing graduate students in the Pharmacology/Toxicology graduate program, and participating in the collaborative research of the pharmacy graduate professional doctorate program. Application deadline is October 15, 1996, or until the position is filled. Applications should include a curriculum vitae, the names and addresses of five references, a summary of research interests and professional goals. Send nominations and applications to: Thomas R. Jerrells, Ph.D., Chair, Search Committee, College of Pharmacy, Washington State University, Pullman, WA 99164-6510. Telephone: 509-335-2139; Email: jerrells@mail.wsu.edu. Washington State University is an Equal Opportunity/Affirmative Action Educator and Employer. Members of ethnic minorities, women, Vietnam-era or disabled persons of any race are encouraged to apply.

UNIVERSITY OF CALIFORNIA SANTA BARBARA
Department of Molecular, Cellular & Developmental Biology
Interdepartmental Graduate Program in
Biochemistry/Molecular Biology

We invite applications for two tenure-track FACULTY POSITIONS in our expanding research programs in biochemistry, molecular, cellular, and developmental biology; and in molecular marine biology. Research expertise is sought in any of the following three areas: (1) protein receptors and signalling; (2) basic cellular/ molecular biology or biotechnology; and (3) prokaryotic molecular microbiology. One position is to be filled at the Assistant Professor level, while the other could be tenure until. Depending upon qualifications of the candidates, the Ph.D. degree, or an equivalent relevant postdoctoral research experience are required. The appointees will be expected to lead vigorous independent research programs and to participate effectively in undergraduate and graduate teaching. A curriculum vitae, selected reprints, a brief description of previous and anticipated research, and arrange to have at least three letters of reference sent to: Faculty Search Committee, Department of Molecular, Cellular & Developmental Biology, University of California, Santa Barbara, CA 93106. Review of applications will begin December 1, 1996, and continue until positions are filled. Email: http://lifesci.ucsb.edu/MCB/mcdb_home.html. University of California, Santa Barbara is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITION available in the Department of Psychology of Virginia Commonwealth University for an assistant professor with a strong research background in behavioral pharmacology. Candidates should have a Ph.D. degree with research experience in laboratory-based studies of behavioral effects of alcohol or drugs of abuse in humans or nonhuman subjects. Laboratory space and research opportunities will be provided at the Medical College of Virginia Health Sciences Campus. Appointment will be at the rank of assistant professor, but the rank based on level of previous experience, senior scientists are also invited to apply. Send letter describing research plans, curriculum vitae, and three letters of recommendation to: Dr. Robert L. Shope, Chair, Department of Psychology, Box 842018, Virginia Commonwealth University, Richmond, VA 23284-2018. Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Employer. Women, minorities, and persons with disabilities are encouraged to apply.

Several TENURE-TRACK faculty positions are available starting fall 1997. Our primary teaching needs are in organic and biological chemistry. We are committed, however, to hiring the best available candidates. We encourage research proposals that interface with other disciplines such as biological, materials, and environmental sciences, as well as interests in the more traditional areas of the discipline. The appointees are expected to establish an exceptionally strong and highly visible research program that incorporates excellence in undergraduate and graduate education. A complete resume, a synopsis of research plans, and letters of recommendation are required. Review of applications will begin October 2, 1996, and will continue until the positions are filled. Send information to: Chairman of the Search Committee, Department of Chemistry, Box 132, Dickinson Laboratory, Penn State University, University Park, PA 16802. An Affirmative Action/Equal Opportunity Employer. Women and minorities encouraged to apply.

The Department of Biochemistry, Duke University Medical Center, is a large and active department in the area of structural biology. The candidates will be expected to establish strong, independent research programs and to participate in departmental teaching. Send letter of interest, curriculum vitae, and three letters of reference to: Christian H. Raetz, Department of Biochemistry, Duke University Medical Center, Durham, NC 27710. Duke University is an Equal Opportunity/Affirmative Action Employer. Applications received after that date will be considered. Applications of all candidates will be accepted until December 1996.

CANCER CENTER DIRECTOR

The University of California, San Diego is seeking a senior cancer researcher at the Professorial level (with tenure) or full professorship level to direct the Python Cancer Center as described below.

DIRECTOR of its NCI designated Cancer Center. The UCSD faculty conducts a variety of research programs related to cancer, many of which are organized under the auspices of the Cancer Center supported by the National Cancer Institute. The Cancer Center lies within the University supported partially by a federal grant.

The Director's major responsibilities will be to: 1) Serve as Principal Investigator of the Cancer Center support grant; 2) Coordinate the Center's basic science, translational, and control and epidemiology research programs; 3) Manage the interface of the clinical enterprise with the research programs of the Center to maximize transfers of research opportunities; 4) Coordinate the efforts of the Cancer Center Foundation to raise funds to support these programs; and 5) Represent the research endeavors of the Cancer Center to the San Diego, and scientific community. Applicants for this position (M.D. or Ph.D.) should have a strong background in basic science, translational or clinical research in a discipline directly related to cancer research and must have substantial leadership skills, and demonstrated management expertise in the organization and operation of research programs. Rank and salary commensurate with experience and qualifications shown, as are those on extended party who submit a curriculum vitae and names of references. Email: info@dir.ucsd.edu.

The Chemistry Department at Michigan State University seeks to fill two TENURE-TRACK positions in organic chemistry. While one position will be filled at the assistant professor level, the second position can be filled at either the assistant or a more senior level. To be considered for a senior level appointment, candidates must have a recognized track record of excellence in research and teaching. Outstanding candidates in all areas of organic chemistry are invited to apply, including synthetic, physical, and theoretical chemistry. Candidates are expected to establish a vigorous research program and pursue excellence in research and teaching at both the graduate and undergraduate level. Applicants must hold a Ph.D. in chemistry or a related field, and should send a current curriculum vitae, a list of publications, and research plans to: Gerald T. Babcock, Chair, Department of Chemistry, Michigan State University, East Lansing, MI 48824. The closing date is October 15, 1996. Only complete applications will be considered. Michigan State University is an Affirmative Action/Equal Opportunity Institution.

BOSTON UNIVERSITY SCHOOL OF MEDICINE DEPARTMENT OF OTOLARYNGOLOGY HEAD AND NECK SURGERY

Director of Molecular Biology and Basic Head and Neck Cancer Research

The candidate is expected to pursue and develop basic research in molecular biology. Strong emphasis on developing clinical applications of molecular biology research is required. Qualified candidate should possess a Ph.D. and have a solid background in cancer molecular biology. Evidence of aptitude for self-motivated research development is a plus.

Send curriculum vitae to: Nabil Fuleihan, M.D., Chairman, OHL-HNS D616, Boston Medical Center, One Boston Medical Center Place, Boston, MA 02118.

Two tenure-track FACULTY POSITIONS available—open rank: Qualifications include a Ph.D. or M.D. degree; three to four years of postdoctoral experience; evidence of significant research accomplishments; interest in developing clinical applications of molecular biology research; ability to attract extramural funding. Preference will be given to applicants in the area of eukaryotic molecular biology. Applicants should send their curriculum vitae, statement of research experience, and the names of three references of reference to: Dr. John Fain, Department of Biochemistry, University of Tennessee, Memphis, TN 38163. The University of Tennessee is an Equal Employment Opportunity/ Affirmative Action/Title VI/Title IX, Section 504/ADA/ADEA Employer.
Developmental Neurobiologist

The Mental Health Research Institute and the Department of Psychiatry of the University of Michigan are seeking candidates for a tenure-track position in Child Psychiatry and Developmental Neurobiology to be jointly appointed at the Assistant Professor/Assistant Research Scientist level. The appointee will develop an independent research program in the area of nervous system development and childhood mental disorders. Applicants should provide a brief statement of research interests and future plans, a curriculum vitae with bibliography, and three letters of reference. Physician scientists with advanced training in molecular genetics and neurobiology will be given preference. Deadline: October 31, 1996. Send applications to: Dr. Stanley J. Watson, Chair, Child Psychiatry/Developmental Neurobiology Search Committee, Mental Health Research Institute, University of Michigan, 205 Zina Pitcher Place, Ann Arbor, MI 48109-0720. The University of Michigan is an equal opportunity/affirmative action employer and specifically encourages applications from qualified women and minorities.

The University of California, San Diego, Department of Chemistry and Biochemistry invites applications for several tenure-track and tenured faculty positions in biochemistry at the Assistant or Associate Professor level. Candidates must have a Ph.D. and a demonstrated ability for creative research and teaching at the undergraduate and graduate levels. The committee is interested in receiving applications from chemists, biochemists, structural biochemists, and molecular biologists. Applicants will be considered in all areas, but the committee is particularly interested in applicants with expertise in three areas: molecular structure, cell proliferation and growth control, and RNA. Salary commensurate with qualifications and based on University of California pay scale. Positions subject to availability of funds. Candidates should send a curriculum vitae, a list of publications, reprints of up to five representative papers, a summary of research plans, and names and addresses of three references to: Chair, Biochemistry Search Committee, 3-277, University of California, San Diego, Department of Chemistry and Biochemistry - 0332, La Jolla, CA 92093-0332. The deadline for applications is October 15, 1996, but until positions are filled all applications received will be assured full consideration. The University of California is an equal opportunity/affirmative action employer.

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DEDICATED TO THE FUTURE OF SCIENCE.

Our dedication to the future is seen in our ongoing commitment to research, development and manufacture of innovative pharmaceutical products worldwide. We currently have these exciting opportunities available for highly motivated, experienced, scientific professionals to join us in our United States Headquarters in Nutley, New Jersey.

METABOLIC DISEASES

This highly-motivated research team focuses on the development of drugs to treat non-insulin-dependent diabetes mellitus (NIDDM) and obesity. Genetics, genomics, and bioinformatics form the basis for identifying disease-linked genes. Through a broad array of technologies, this team explores the function and biological roles of corresponding gene products in disease initiation and progression, identifies novel drug targets and develops innovative therapeutics.

BS/MS SCIENTIST-BIOCHEMISTRY

Using innovative and state-of-the-art approaches, the successful candidate will purify and characterize native and recombinant proteins and will provide expertise in protein biochemistry to project teams. To qualify for this challenging position, you must have a BS or MS in biochemistry or biology, with 3-5 years experience in protein biochemistry. You must also show strong skills in writing, presentation, and interpersonal communications. (Respond to: Lynn Harac, Dept. LH336K)

BS/MS SENIOR SCIENTIST-MOLECULAR BIOLOGY

If you’re selected, you will support drug discovery efforts through the cloning and characterization of various disease-linked genes. This will require you to know and use biological techniques such as cDNA cloning; heterologous protein expression in E. coli, baculovirus, and mammalian cells; site-directed mutagenesis; western, northern, and southern blot analysis; immunoprecipitations; and signal transduction studies. To be considered for this exciting position, you must have a BS or MS in biology or molecular biology and several years experience that includes background in molecular and cellular biology, cDNA cloning, recombinant protein expression, signal transduction and tissue culture. (Respond to: Stella Strazdas, Dept. SS526JK)

We offer an attractive salary and benefits package in a state-of-the-art work environment. For consideration, please send your resume with salary requirements (indicating appropriate department code in the address) to: Staffing Dept. _____, Hoffmann-LaRoche, Nutley, New Jersey 07110-1199. No phone calls please. PRINCIPALS ONLY. We are an equal opportunity employer.

Roche

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EVOLUTIONARY BIOLOGIST

The Department of Biology at Swarthmore College invites applications for a tenure-track appointment at the ASSISTANT PROFESSOR level, to begin September 1997. We seek an evolutionary biologist who is committed to combining teaching and research at a small liberal arts college. Teaching responsibilities include a broadly based intermediate-level course in evolution, an advanced seminar in a major area within evolutionary biology, and participation in the Department’s introductory biology sequence. The successful candidate will be expected to establish an active research program that will provide opportunity for undergraduate participation. A Ph.D. is required, postdoctoral research experience and teaching experience are desirable. Interested individuals should submit a curriculum vitae along with statements of teaching and research interests, and arrange to have three letters of recommendation sent by October 15, 1996, to: Dr. Rachel Merz, Department of Biology, Swarthmore College, Swarthmore, PA 19081-1397.

Swarthmore College is an Equal Opportunity Employer and specifically invites applications from women and minorities.

THE ERNA AND JAKOB MICHAEL VISITING PROFESSORSHIPS 1997/98

THE JOSEPH MEYERHOFF VISITING PROFESSORSHIP 1997/98

THE ROSIE AND MAX VARON VISITING PROFESSORSHIPS 1997/98

THE MORRIS BELKIN VISITING PROFESSORSHIP 1997/98

The Weizmann Institute of Science, Rehovot, Israel, offers the above Visiting Professorships in the Natural and Exact Sciences.

The Visiting Professorships are intended for candidates already holding the rank of Full Professor or equivalent in their respective fields for a duration of approximately one month. Applicants should be Ph.D. holders with at least three years of independent research experience.

Deadline for submission of completed applications is December 31, 1996.

For further information and application forms, please contact: Prof. Dr. Herman Ben-Asher, Head, Academic Secretary, The Weizmann Institute of Science, Rehovot 76100, Israel. Tel: 972-8-381300; FAX: 972-8-471667; Email: nmajar@ weizmann.ac.il. Applications and information are also available on the Internet at: http://www.weizmann.ac.il.

THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER FACULTY POSITIONS

The Department of Molecular Biology and Oncology at the University of Texas Southwestern Medical Center invites applications for tenure-track faculty positions at the level of ASSISTANT PROFESSIONAL

We are seeking interactive individuals to join a new department with strengths in developmental biology, molecular biology, and genetics. Successful applications should be able to establish and develop a vigorous and independent research program that is productive and in line with the research interests of the department.

Applications should be sent to: Chair, Organic Search Committee, Department of Chemistry, Baker Laboratory, Cornell University, Ithaca, NY 14853-1201, and be received no later than November 15, 1996. Cornell University is an Affirmative Action/Equal Opportunity Employer and Educator.

EVOLUTION OF VIRULENCE GLASSER DISTINGUISHED VISITING PROFESSOR IN BIOLOGICAL SCIENCES

Applications are solicited from distinguished scientists interested in visiting the Department of Biological Sciences at Florida International University (FIU), the State University of Florida at Miami. For the 1997 GLASSER VISITING PROFESSORSHIP we are specifically interested in scientists working on the evolution of Virulence. The Glaser Professor will offer a short course (10 lectures over a two to three week period sometime during the Spring 1997 term) at FIU. The professor will be expected to give one page lecture notes, and interact with faculty and students. Remuneration is $8,000 for travel, lodging, and honorarium. FIU is a growing, dynamic public university with 28,000 students. The Department of Biological Sciences has 1 faculty position and 70 graduate students (M.S. and Ph.D.). Apply with letter of intent, brief course outline, resume, and reprints of three relevant publications before 10 October 1996 to: Dr. Perlo, Chair, Department of Biological Sciences, Florida International University, Miami, FL 33199. Women and minorities are especially encouraged to apply. FIU is an Affirmative Action/Equal Opportunity Employer.

CHEMICAL OCEANOGRAPHER

The Institute of Marine Science, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, seeks applications for a three-track FACULTY POSITION. The successful applicant will be expected to establish a vigorous, externally-funded research program, to supervise graduate students, and to teach chemical oceanography and other graduate level courses in marine sciences or chemistry. Applicants for any rank will be considered, but at least one year of postdoctoral experience is required. Information on the Marine Science can be found at http://www.sfos.alaska.edu: 8000/. Applicants should submit a curriculum vitae, which includes a description of research and teaching experience and recent funding, one-page statement of current and future research interests, and the names of three references to: Dr. Susan Heinrichs, Institute of Marine Science, University of Alaska Fairbanks, P.O. Box 75677, Fairbanks, AK 99775. Applications should be submitted by November 15, 1996. University of Alaska Fairbanks is an Equal Opportunity/Affirmative Action Employer.

Pending approval and funding, The Department of Biology at The University of Tampa invites applications for a tenure-track position, beginning in August 1997, to teach Marine Botany, Biology of Plants, Introductory Biology for majors and Biological Science for non-majors. Experience in environmental science is desirable. The department is especially interested in candidates who are biologists interested in botanists to completer the marine and environmental science faculty in the department. The candidate is expected to engage in research activities that involve undergraduates. Ph.D. is required, postdoctoral experience is desirable. The department is committed to students with undergraduates desirable. Send curriculum vitae, statement of teaching philosophy, and research interests, official transcripts, and the names, addresses, and telephone numbers of three references who are willing to provide letters of recommendation. Review of applications will begin November 1, 1996, and continue until the position is filled. All materials should be addressed to: Botany Search c/o Human Resource Services, University of Tampa, 401 W. Kennedy Boulevard, Tampa, FL 33606-1490. Email: http://www.utampa.edu. The University of Tampa is an Equal Opportunity/Affirmative Action Employer.

CORNELL UNIVERSITY

The Department of Chemistry is searching for a tenure-track faculty member at the ASSISTANT PROFESSOR level. Outstanding candidates in the area of organic chemistry, especially polymer chemistry, will be considered. A Ph.D. degree is required, and postdoctoral experience is preferred. The successful applicant will be expected to establish a competitive research program and to teach both undergraduate and graduate organic chemistry courses. Applicants should submit a curriculum vitae, publication list, summary of research experience, graduate research plan, and a brief summary of research proposals. These materials and three letters of recommendation should be sent to: Chair, Organic Search Committee, Department of Chemistry, Baker Laboratory, Cornell University, Ithaca, NY 14853-1201, and be received no later than November 15, 1996. Cornell University is an Affirmative Action/Equal Opportunity Employer and Educator.

HAVERFORD COLLEGE

The Biology Department seeks a tenure-track faculty member at the ASSISTANT PROFESSOR rank for the fall of 1997. The successful applicant will teach introductory and advanced courses in the Biology Department and contribute to teaching the biology minor and the biology and chemistry minor. Responsibilities include designing and teaching courses in the area of structure and function of macromolecules. S/he will receive teaching credit for maintaining an active research program engaging undergraduate students in the study of important questions in biological problems at the molecular level. Some topics of interest include, but are not limited to, protein structure, protein-nucleic acid interactions, and biochemical applications of RNA processing. S/he will also be expected to participate actively in the teaching of non-scientists and of advanced undergraduate students enrolled in the interdisciplinary Area of Concentration in biochemistry and molecular biology. Post-doctoral research experience is required. Send curriculum vitae, research plans, teaching interests, and three reference letters by November 15, 1996, to: Dr. Perlo, Chair, of the Biology Search Committee, Haverford College, Haverford, PA 19041. Questions about the position can also be directed to: Dr. Philip Meneley in the Department of Biology. Email: pmeneley@haverford. edu or Telephone: 610-896-4996.

Haverford College, located 10 miles west of Philadelphia, is an Equal Opportunity/Affirmative Action Employer. Women and minority candidates are especially encouraged to apply.

TEACHING OVERSEAS

The Department of Biology at the American University of Beirut (AUB) in Beirut, Lebanon, invites applications for faculty positions in the fields of marine biology and 2) plant taxonomy (with experience in plant ecology), starting October 1, 1997. The completed doctorate is required, postdoctoral experience is desirable. Rank will normally be ASSISTANT PROFESSOR; contract is for three years. The Department offers both bachelor’s and master’s degrees, with the master’s thesis option. The master’s thesis is an integral part of the course of study. Prospective candidates will be expected to engage in research, to be qualified to teach on the undergraduate and graduate levels, and to be qualified to supervise student research and thesis writing. The language of instruction is English.

Interested candidates should send a letter of application (with a copy to the Director of Personnel, c/o AUB New York Office) and a curriculum vitae, and should arrange to have three letters of recommendation sent by November 15, 1996, to: Dean, Faculty of Arts and Sciences, American University of Beirut, c/o New York Office, 850 Third Avenue, 18th Floor, New York, NY 10022-6207, USA. Incomplete and/or late applications will not be considered.

American University of Beirut is an Equal Opportunity/Affirmative Action Employer.

U.S. citizens are particularly invited to travel to, live in, or travel through Lebanon, and for residence in Lebanon, by order of the Department of State, and therefore applications from individuals who would travel to or reside in Lebanon on a U.S. passport cannot be accepted at this time.

ASSISTANT PROFESSOR VETERINARY MOLECULAR BIOLOGY

Applications are invited for a tenure-track ASSISTANT PROFESSOR position in research, 10% instruction, and is supported by a generous start-up package, including technical support. Salary range is $42,000 to $50,000 based on experience and qualifications. Required qualifications: Ph.D. or D.V.M. in a biomolecular discipline, postdoctoral experience, and potential to establish, or evidence of, a competitive, independent research program. Areas of research interest include virology and cellular biology. Application of molecular genetics and cellular models of infectious disease of viral and bacterial origin and the study of host responses to these agents. Interested applicants should send curriculum vitae, selected reprints, three letters of recommendation, and research plans and grant proposals, and arrange for three letters of reference to be sent to: Chair, Search Committee, Veterinary Molecular Biology, Montana State University, Bozeman, MT 59717-3610. Screening will begin November 1. AEA/Equil Opportunity/Affirmative Action / Veteran's Preference.
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Brian Metcalf
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A. Jacqueline Hunter

Topics
1. Inflammatory Cells in CNS Injury
2. Free Radicals in CNS Injury
3. Oligodendrocytes and MS
4. Inflammatory Mediators in CNS
5. Ischemic Insult and Inflammation
6. Neurodegenerative Inflammatory Disorders and Potential Therapies
7. Mechanism of Cell Damage and Repair
8. Adhesion Molecules, the BBB and Neuroinflammation
9. Cytokines in CNS Inflammation

Speakers
Dr. Frank Barone
Dr. Nicolas G. Bazan
Dr. Kieran Breen
Dr. Pak H. Chan
Dr. Chun C. Chao
Dr. Michael Chopp
Dr. Gregory J. del Zoppo

Dr. Errol B. De Souza
Dr. Giora Z. Feuerstein
Dr. Seth P. Finklestein
Dr. John M. Hallenbeck
Dr. Chung Y. Hsu
Dr. Constantino Iadecola
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Professor Peter Jenner
Dr. Matthew D. Linnick
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Dr. R. M. Ransohoff
Dr. Joseph Rogers

Dr. Gary A. Rosenberg
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For additional information and registration forms, contact:
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Carol Colabelli
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ZymoGenetics, a Seattle-based biotechnology company located in the historic Lake Union Steam Plant, is looking for a Scientist/Sr. Scientist to join our Research Information Group.

This position will compile/review disparate genetic/phenotypic sources of disease-related and structure-based information relevant to bioinformatics and molecular biology. Working closely with the Biomolecular Informatics department, you will discover novel proteins by database mining. Qualified candidates will have a Ph.D. or M.D. and 2-5 years of experience. Current search skills utilizing literature/internet-accessible data and broad biological knowledge are essential.

As a subsidiary of Novo Nordisk A/S, the world’s largest manufacturer of insulin, 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 # 12N296, to: ZymoGenetics, Inc., Human Resources, 1201 Eastlake Avenue East, Seattle, WA 98102. ZymoGenetics is committed to Equal Opportunity and Diversity.
Innovative research at Sandoz has been enhancing medicine around the world for over a century. Pioneering drugs have extended and improved the quality of life for countless individuals and revolutionized basic scientific concepts within the transplantation and mental health fields. Our progress is the result of research conducted by professionals who specialize in many different fields. Scientists in our New Jersey laboratories are making exciting discoveries in the fields of Metabolic Diseases and Oncology and are seeking talented postdoctoral fellows to participate in these endeavors. Opportunities now exist in the following areas:

**IN VIVO MODELING/METABOLIC DISEASES**
The successful candidate will be involved in conducting in vivo metabolism studies in non-human primates. This will require designing studies, behavioral training of primates, conducting sensitive metabolic procedures, analyzing data and interpreting results. Extensive experience at the doctoral level (or equivalent) in animal physiology, biology, nutrition, or a related field, previous in vivo experience and strong communication skills are required. Expertise on non-human primates would be advantageous and a background in metabolic diseases, particularly diabetes, is strongly desired. (Position #PD045)

Postdoctoral appointments are for one year but are renewable for a second year by mutual agreement. Scientists work in an environment that encourages creative thinking with ample opportunities for publications and research presentations. Sandoz offers comprehensive medical benefit plans as well as an attractive location in northern New Jersey. For consideration, please specify the number of the position that you are responding to and forward your curriculum vitae and the names and addresses of three references to:

**SANDOZ PHARMACEUTICALS CORP**
Staffing Department
Building 122/3
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**1997 KEYSTONE SYMPOSIA**

**POSTDOCTORAL RESEARCH OPPORTUNITIES**

**TUMOR BIOLOGY**
This position will involve studying regulation of apoptosis in tumors. Project includes development of cellular systems to examine effects of chemotherapeutic agents on gene expression and characterization of nuclear proteins that are transcriptionally regulated by chemotherapeutic stress responses. A working knowledge of tumor biology and experience in molecular cloning, tissue culture and protein purification is necessary. A PhD or equivalent in a relevant field with one to three years prior postdoctoral experience is preferred. (Position #PD046)

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bringing research to life

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**1997 KEYSTONE SYMPOSIA**

- Processing of Peptide Hormones, Neurotransmitters, Growth Factors and Viral Proteins
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- Mucosal Immunity: Cellular and Molecular Cross-Talk at Mucosal Surfaces
- The Role of Chemokines in Leukocyte Trafficking and Disease
- Temporal & Spatial Determinants of Specificity in Signal Transduction
- Signal Transduction by Cell Adhesion Receptors
- Molecular Biology of Muscle Development
- Metabolic Engineering in Transgenic Plants
- AIDS Pathogenesis
- Genetics of Human Cancer: Pathogenesis & Diagnosis
- Molecular and Cellular Biology of Gene Therapy

**Growth Control**
- Bone, Cartilage & Collagen: Growth & Differentiation
- Ocular Cell and Molecular Biology
- Molecular and Cellular Biology of Apicomplexan Protozoa
- Innate Immunity: Non-Clonal Host Defense Mechanisms

**B Lymphocytes in Health and Disease**
- The Adipose Cell: Molecular Aspects of Differentiation, Gene Expression and Metabolic Regulation in the Normal Cell and Obese Models
- Insulin Action & Secretion in NIDDM
- Evolution of Plant Development
- Inflammation, Growth-Regulatory Molecules and Atherosclerosis

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- Hematopoiesis
- Molecular Mechanisms of Evolution: Structure, Function, Expression and Regulation of Genes and Proteins
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- Functional Organization of the Nucleus
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ASSOCIATE INVESTIGATOR

St. Jude Children's Research Hospital has completed a $105 million expansion. The new patient care facility opened in 1995. The new facilities will permit an increase of approximately one-third in the size of the scientific staff.

ST. JUDE CHILDREN'S RESEARCH HOSPITAL, a renowned center for biomedical research and treatment of pediatric cancers, has an immediate opening for an ASSOCIATE INVESTIGATOR in the Experimental Oncology Department. This full-time position is available to operate the new Cancer Center Core cell microinjection facility, equipped with a state-of-the-art microprocessor-assisted microinjector and digital imaging microscope. Duties include microinjection of tissue culture cells, performing imaging experiments using fluorescent and brightfield microscopy, as well as maintaining the equipment, under the supervision of the facility director. Candidates must have a Ph.D. with three years of experience in the field of biology. Preference will be given to those with experience in cell microinjection. Experience with techniques of light microscopy is preferred, and familiarity with the operation of personal computers is helpful.

The salary is very competitive and the generous fringe benefits package includes three weeks vacation the first year.

To apply, please send your resume to: St. Jude Children's Research Hospital, Human Resources Department, 332 N. Lauderdale, Memphis, TN 38101-0318. AA/EOE

ASSOCIATE SCIENTIST

Molecular Biosystems, Inc., a leader in the development and manufacture of contrast imaging agents for ultrasound, is seeking a highly motivated self-starter. Responsibilities include interacting with inside & outside investigators in initiating, designing, and conducting preclinical safety, efficacy, and pharmacokinetic studies. Participates in project teams and preparation of study protocols, data, reports, INDs, and NDAs. Requires a Ph.D. in pharmacology, toxicology, or physiology with two years of postdoctoral training and up to two years of preclinical laboratory experience in an industrial research environment. Must have excellent written and oral communication and organizational skills and the ability to travel.

MBI offers a competitive compensation program, comprehensive benefits package, and a professional working environment. Send resume to:

Molecular Biosystems, Inc.
Attn: HR Dept, A05-97
10030 Barnes Canyon Road
San Diego, CA 92121
Equal Opportunity Employer

Head of Biological Sciences

The University of Cincinnati College of Arts and Sciences invites applications for the position of Head of the Department of Biological Sciences. The Department of Biological Sciences consists of 27 faculty with approximately 20 Ph.D. students, 40 Masters students, and 400 undergraduate majors. The Department maintains a vigorously research program which spans the broad spectrum of biology with more than $1.6 million in external research funding.

Candidates must have a nationally recognized record of scholarly research, proven administrative and leadership skills, and qualify for appointment as full professor with tenure. The Head will be expected to maintain a well-funded research program, and provide leadership in enhancing both research and educational programs at the undergraduate and graduate levels. A priority of the department is to strengthen its graduate program both through an enhancement of its ecology, evolution, and organismal biology component, and through increased interaction of the cell and molecular component with the College of Medicine.

Applicants should send their curriculum vitae, a description of their qualifications, and three letters of reference to: Chair, Biological Sciences Headship Search Committee, PO BOX 21072, University of Cincinnati, Cincinnati, OH 45221-0172. Review of applications will begin December 1, 1996, and continue until the position is filled. The University of Cincinnati is an Equal Opportunity Affirmative Action Employer.

CAREER CONNECTION

BIOTECH/PHARMACEUTICAL

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Career Connection leads the nation in providing the most comprehensive pharmaceutical/biotechnical job fairs. Our clients will interview professionals in:

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Pharmaceutical Opportunities

SmithKline Beecham, the world renowned innovator in consumer healthcare and pharmaceutical R&D, continues to experience outstanding success. As a result, we seek to add the following professionals to join our industry-leading scientific team:

**Associate Scientist/Scientist, Cardiovascular Pharmacology**

The selected candidate will assist supervisor in initiating and conducting laboratory experiments, maintaining and analyzing laboratory data, helping preparation of scientific reports, and managing the laboratory. You will be expected to maintain a working knowledge of the scientific literature pertinent to current research activities.

Qualifications include a BS or MS degree in biological sciences with 2-3 years of laboratory experience and a background in cellular biology and biochemistry along with solid computer skills. Experience in cardiovascular pharmacology, molecular biology and in the area of receptors, signal transduction and apoptosis is highly desirable. Refer to Job Code H6-0347.

**Ph.D. Molecular Biologist**

The selected individual will establish and conduct an independent research program in organ remodelling with particular emphasis on prostate and renal disease. The successful candidate will have a Ph.D. in Cell Biology, Molecular Biology, Pharmacology, Biochemistry or related discipline with 2-3 years of relevant postdoctoral and/or industrial experience. He/She must also have expertise in transcription factors and transcriptional regulation. A strong record of scientific publications, superior oral/written communication skills and a high level of motivation are required. Refer to Job Code H6-RP-DB.

Located in our state-of-the-art research facility in suburban Philadelphia, SmithKline Beecham offers a competitive compensation/benefits/relocation package. For confidential consideration, please forward your resume and salary requirements, indicating desired job code, to: SmithKline Beecham Pharmaceuticals, Job Code PO. Box 2645, Bala Cynwyd, PA 19004. We are an Equal Opportunity Employer, M/F/D/V.

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Challenging the natural limits.

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**FIVE FACULTY POSITIONS**
**DEPARTMENT OF BIOLOGY**
**THE UNIVERSITY OF CALIFORNIA, SAN DIEGO**

The Biology Department at UCSD has a large faculty spanning many areas of biological science and one of the largest and most diverse graduate programs in the country. Two years ago a major long-term expansion of the faculty was initiated. Applications are now invited for five faculty positions. These include one appointment at the Full Professor level for an endowed chair of Neuroethology, and four appointments with strong preference at the Assistant Professor level in the following areas: biochemistry, cell biology, immunology, and ecology and evolutionary biology.

1. The Walter F. Heiligenberg Chair of Neuroethology. An endowment has been established to fund a Chair in memory of Walter Heiligenberg, a former colleague at UCSD, to honor him and to perpetuate the kind of research that he loved. We are seeking a world leader in studying the neural basis of natural behavior. We will consider candidates with experience in a broad range of fields, including electrophysiology, pharmacology, anatomy, behavioral biology, and computational neurobiology. Search Committee Chair: William B. Kristan.

2. Assistant Professorial position in Biochemistry/Signal Transduction. Exceptional candidates pursuing innovative approaches to biochemical problems are encouraged to apply. Areas of interest include signal transduction, DNA replication, recombination, and repair; RNA transcription/splicing, and protein synthesis/degradation. Search Committee Chair: James T. Kadonaga.

3. Assistant Professorial position in Cell Biology. Exceptional candidates pursuing innovative approaches to any broad or fundamental aspect of cell architecture, cell function, cell-cell interaction, or cell differentiation are encouraged to apply. Search Committee Chair: Douglas J. Forbes.

4. Assistant Professorial position in Immunology. Individuals with a broad interest in the basic biology of immunity are encouraged to apply. Topics of interest may include: mechanisms of immunoglobulin gene rearrangement, function of cytokines and adhesion molecules in inflammation; molecular basis of autoimmune diseases; signal transduction pathways in lymphocyte activation and apoptosis; ligand-receptor or cell-cell interactions in antigen presentation; and molecular mechanisms of host and pathogen interactions. Search Committee Chair: Jean Y. J. Wang.

5. Assistant Professorial position in Ecology and Evolutionary Biology. We are particularly interested in the areas of microbial evolutionary ecology, host-parasite interactions, and plant-animal interactions. However, applications from researchers working in any area of ecology or evolution are encouraged. Search Committee Chair: Ted Case.

Ph.D. and postdoctoral experience are required. Salaries will be commensurate with stature and based on the UC scale. The number of positions filled from this ad is contingent upon the availability of funding. **Application deadline is October 21, 1996.** Please submit a CV with your phone and FAX numbers and email address, bibliography, statement of professional goals and research interests, and the names, addresses, phone and FAX numbers and email addresses of three references to Mr. Susan Piercy, Department of Biology 0346; The (insert position title) Search, University of California, San Diego, 9500 Gilman Drive, La Jolla, California 92093-0346. Please identify the position you wish to be considered for and indicate the journal advertisement to which you are responding. The University of California, San Diego, is an Affirmative Action/Equal Opportunity Employer.
From Gurgaon, India. Where our state-of-the-art laboratories are located. Sprawling over 13 acres of land, this is where 280 high-calibre scientists are currently working towards new breakthroughs in drug research.

We are a leading pharmaceutical company with acknowledged strengths in brand marketing, R&D and technology. With manufacturing facilities and joint ventures across the globe, our products are sold in over 40 countries. To spearhead our research drive, we are looking for the following senior research professionals:

**Accelerating growth through Research & Marketing**

**Director (Clinical Research)**

**Responsibilities:** Development and management of clinical research activities in human subjects including management of clinical trials pertaining to generics, Novel Drug Delivery Systems and NCE's in several parts of the world.

Generation of relevant clinical/medical documentation for regulatory affairs.

Liaison with hospitals both in India and abroad.

Interaction with Regulatory Authorities.

Provide a high degree of technical expertise, motivation and leadership to teams of scientists.

**Qualification and Experience:** MD or Ph.D in Clinical Medicine or Clinical Pharmacology.

Minimum 15 years of experience in clinical drug research with a reputed drug research institute/pharmaceutical company.


Sound knowledge of GCP and GLP regulations and FDA guidelines.
Executive Director (Pharmaceutical Research)

Responsibilities: Development and commercialisation of drug delivery systems.
Supervise and channelise development and commercialisation of bio-equivalent dosage forms, value added generics and advanced drug delivery systems.
Validation, technology transfer and post-marketing improvements.
Provide a high degree of scientific direction and leadership to teams of Research Scientists.
Develop and enhance external research collaborations / arrangements.
Interact, advise and consult with strategic partners in the event of joint development programmes / ventures.

Qualification and Experience: Ph.D or M. Pharm in Pharmacy with relevant experience of more than 15 years.
Sound understanding of pre-formulation, bio-equivalent generics and Novel Drug Delivery Systems.
Good knowledge of worldwide regulatory requirements, pharmaceutical manufacturing, validation and cGMP aspects.
Ability to co-ordinate Research Collaborations and guide joint development programmes.

Director (Analytical Research)

Responsibilities: Direct large Analytical Research groups.
Supervise stability studies, methods development, characterisation of impurities, degradation patterns of drug substances and complete analysis of dosage forms and bulk drugs as per specifications.
Preparation of SOP's, protocols, analytical data/documentation for submissions to regulatory agencies / manufacturing locations.
Provide a high degree of technical expertise, motivation and leadership to teams of Research Scientists.
High level of interface with Manufacturing, CQA and Regulatory groups.

Qualification and Experience: Ph.D or M.Sc in Pharmacy or Analytical/Organic Chemistry with at least 15 years of relevant experience.
Excellent working knowledge of sophisticated instruments such as HPLC, GC, NMR, UV and LC/MS systems.
Should be well versed with cGLPs and International Regulatory requirements.

Director (Chemical Research)

Responsibilities: Manage Chemical Research Programmes of high quality. Design and execute comprehensive synthesis plans aimed at discovering and optimising innovative chemical synthesis.
Supervise all activities pertaining to the synthesis of drug substances, from the basic stage to commercialisation.
Provide scale-up and trouble-shooting advice to manufacturing, as well as define / recommend procedures and solutions for technology development.
Provide a high degree of scientific direction and leadership to teams of Research Scientists.

Qualification and Experience: Ph.D in Organic Chemistry with at least 15 years of relevant experience.
Proven expertise in innovating new chemical routes, which could lead to commercialisation and obtaining international patents.
Should possess substantial publication record both in scientific journals and patents literature.

Director (Novel Drug Delivery Systems)

Evaluation of methodologies for designing Controlled Release Formulations and implementation of Novel Drug Delivery Technology under cGMP environment.
Supervise development of innovative formulation and processing techniques.
Manage external research collaborations associated with drug delivery programmes.
Provide a high degree of technical direction, motivation and leadership to teams of scientists.

Qualification and Experience: Ph.D in Science (Pharmaceutical or Polymer) with 12-15 years experience in Sustained Release Drug Delivery Systems.
Comprehensive knowledge of both general processing and Sustained Release Technology equipments.

All these are senior positions in the company. Selected scientists will enjoy freedom of operation and the responsibility that goes with it. This will include independent handling of the relevant division and all its functions.

The company offers a congenial and stimulating work atmosphere. So if you would like to be a part of the exciting world of research at Ranbaxy, please get in touch with:

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Human Resources
Ranbaxy Laboratories Limited
25, Nehru Place, New Delhi-110 019.
Fax : 011-6430633, 6476288

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LABORATORIES LIMITED
We are an equal opportunity employer
Amylin Pharmaceuticals, Inc. is a growing pharmaceutical company working on new medicines for diabetes and related metabolic disorders.

We currently have an opening for a Sr. Research Associate to develop and perform receptor binding and in vitro functional assays for drug discovery and pharmacology research. Candidates must have a BS or MS in a biological science with at least 6 years’ (BS) or 3 years’ (MS) laboratory experience. The position requires a solid background in radioligand binding assays, cell signaling and/or functional assays, assay development, and tissue culture; and excellent written/oral communication and technical skills.

Amylin offers a stimulating work environment and an excellent salary and benefits package. If interested, please send your resume to: C. Wiese/Job Code CM, Amylin Pharmaceuticals, Inc., 9373 Towne Centre Drive, San Diego, CA 92121. Via e-mail: mworley@amylin.com. Or visit our web page at www.amylin.com.

Amylin is proud to offer equal employment and a culturally diverse workplace to everyone.

POSTDOCTORAL FELLOWSHIPS

Molecular and Cellular Biology

Zeneca Pharmaceuticals, a worldwide leader in the discovery and development of innovative pharmaceuticals, has a number of positions open for Postdoctoral Fellows in our expanding Molecular and Cellular Biology Section of the Target Discovery Department. Fellows will engage in discovery research leading to the identification of novel molecular targets and pharmacologic therapies. The research emphasizes are in the areas of gene expression, lymphocyte development and signaling, myeloid lineage development, and apoptosis. Zeneca offers exceptional research support in terms of in-house molecular and chemical technologies, genomics and bioinformatics capabilities, and structural biology, as well as opportunities for collaboration with scientists in Target Discovery and Disease Sectors across Zeneca Research (USA and UK).

We seek creative thinkers who can apply molecular tools and rigorous scientific method to biological problem solving.

Interested candidates should submit a c.v. with cover letter describing interests and goals to: Dan Lawlor, Human Resources, Zeneca Pharmaceuticals, 1800 Concord Pike, Wilmington, DE 19850-5437. An Equal Opportunity Employer M/F.

TENURE TRACK POSITION

Scripps Institution of Oceanography

Applications are invited for a faculty position at the Assistant or Associate level in the broad area of marine sedimentology/paleoceanography. The specific area of research is open but fields such as high-resolution paleoclimatology, carbonate and phosphate sedimentation, Mesozoic and Cenozoic ocean history, and Quaternary ocean dynamics would best complement existing research strengths. We intend to fill this position at the Assistant level (tenure-track) but will consider appointment at a higher level in exceptional circumstances; exact rank and salary will be commensurate with qualifications and experience in accordance with University of California academic policy and pay scales. Applicants must show evidence of excellence and independence in research as demonstrated by their publication record and letters of reference and will be expected to maintain a strong extramurally-funded research program. The position will involve teaching and research supervision at the graduate level, and the appointee will be expected to play a role in the undergraduate Earth Sciences degree program. Applicant must hold a doctoral degree at the time of appointment. Applications should include a detailed resume with a description of research interests and teaching plans, a publication list, and the names and addresses of at least three referees. Send applications by November 15, 1996 to Chair, Sedimentology Search, SIO Graduate Department, University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92039-0208. UCSD is an Equal Opportunity/Affirmative Action Employer.
Microbial Immunologist

We are seeking a creative, team-oriented, Industry experienced Senior Scientist to lead a research program focused on investigating the role of novel carbohydrates in the regulation of natural defenses against infectious challenges. Qualified candidates must have Ph.D. or M.D. with extensive experience in microbiology, immunology and in vivo bacterial, viral, and fungal disease models. A demonstrated research track record as well as excellent oral and written communication skills are also essential.

Experimental Hematologist

We seek a creative, team-oriented Senior Scientist to develop and lead a research program focused on investigating the role of novel carbohydrates in the regulation of hematopoiesis with applications toward facilitating multilineage hematopoietic recovery following cytoablative therapies. Qualified candidates must have Ph.D. or M.D. with extensive experience in in vivo and in vitro experimental hematology techniques, including CFU-Meg, BFU-e, CFU-GEMM, long-term cell cultures, flow cytometry, and progenitor cell isolation. A demonstrated research track record as well as excellent oral and written communication skills are essential and industry experience is preferred.

Alpha-Beta Technology Inc., located in Central Massachusetts, offers competitive salaries and a strong benefits package that includes 3 weeks vacation immediately, 401(k) Plan with Company match, and an environment that fosters professional development and teamwork. Please send c.v. in confidence to: Alpha-Beta Technology, Inc., Attn: Myra L. Patchen, Ph.D., c/o Nancy Seals, Human Resources Manager, One Innovation Drive, Dept. SC, Worcester, MA 01605. e-mail: hrdept@abi.com. Equal Opportunity Employer M/F/D/V.

POST DOCTORAL FELLOWSHIP

Position available in the Articular Cartilage section of the Bone and Connective Tissue Department. This group is focused on articular cartilage metabolism, osteoarthritis and cartilage repair, with particular interest in the involvement and effects of the TGF-β superfamily. The successful candidate will have research experience in the general field of connective tissue, but specific emphasis depends on the candidate’s field of expertise and interests.

To apply for the above position, send curriculum vitae and references to Dr. Elisabeth Morris at the address listed below or email: emorris@genetics.com

ADDITIONAL OPPORTUNITIES

- Discovery Research
- Small Molecule Drug Discovery
- Process and Product Development
- Preclinical Research & Development
- Clinical Development
- Manufacturing and Quality Control
- Facilities and Technical Services

Genetics Institute offers competitive salaries and benefits, including comprehensive health care, dental and life insurance, three weeks’ paid vacation, 401(k), stock purchase plan, relocation assistance, and an on-site exercise facility.

For consideration, please send or fax resume to: Human Resources Department, Genetics Institute, Inc., 87 CambridgePark Drive, Cambridge, MA 02140. Fax: (617) 870-6847. Genetics Institute is dedicated to building strength through diversity.

Director, Division of Intramural Research Programs
NATIONAL INSTITUTE OF MENTAL HEALTH
NATIONAL INSTITUTES OF HEALTH

The National Institute of Mental Health invites nominations and applications for the position of Director, Division of Intramural Research Programs (DIRP), located in Bethesda, Maryland. This program is the largest scientific research center in the world focused on mental health, mental illness, and behavioral and brain research. Its diverse research programs employ over 900 employees in 24 laboratories and clinical branches.

Responsibilities of the Director, DIRP, include the overall management of all scientific, fiscal, and personnel resources. The Director is involved in planning and directing basic and clinical research, supervising the training of scientists, implementing national science policy, and administering and evaluating research programs.

Minimum qualification requirements include a degree of Doctor of Medicine, Doctor of Philosophy, Doctor of Osteopathy, or a bachelor’s or higher degree in an academic field related to the health sciences, and progressively responsible experience in developing, administering, and evaluating biomedical research programs.

The person selected for the position may receive a career appointment to the Executive Service with an annual salary range of $100,526 to $122,688. Physicians may be eligible for a Physician’s Comparability Allowance up to $20,000 per annum. And, a recruitment bonus of up to 25% of base pay may be available. Alternately, this position may be filled through an appointment in the Public Health Service Commissioned Corps or via eligibility for appointment in the Senior Biomedical Research Service, where the salary is set commensurate with education and experience and may range up to $148,400.

Further information about the position and qualification requirements may be obtained by contacting Patricia Middleton at (301) 443-9094. Completed applications should be submitted to Ms. Middleton at the Personnel Management Branch, National Institute of Mental Health, Parkdawn Building, Room 7C15, 5600 Fishers Lane, Rockville, MD 20857. Completed applications must be postmarked by the closing date of the vacancy announcement, October 18, 1996.

NIH is an Equal Opportunity Employer.
ASSISTANT PROFESSOR
STRUCTURAL MOLECULAR BIOLOGY
University of Illinois at Chicago (UIC)
The Laboratory for Molecular Biology (LMB) of the Department of Biological Sciences at the University of Illinois at Chicago invites applicants for a faculty position at the level of ASSISTANT PROFESSOR beginning September 1997.

Candidates with a research program addressing biological problems from a structural perspective are sought. Successful candidates will be expected to pursue a vigorous, independent research program and to contribute to the department's undergraduate and graduate teaching effort.

Applications are accepted from individuals wishing to initiate research programs in an area of biology in which they have demonstrated significant independent research productivity. The LMB is well equipped to support a research program in the molecular basis of disease and biological function. The successful candidate will have the opportunity to establish a research program in a new environment.

Two new positions, ASSISTANT or ASSOCIATE PROFESSOR (tenture-track), beginning January or August 1998. Each position will require the candidate to have a Ph.D. or the equivalent degree in a field closely related to the research area of the department. Each position is expected to include 50% teaching of upper-level courses and 50% of research. Candidates are expected to have a strong, independent, and successful research program and to have potential to become an excellent teacher. The salary is competitive and depends on qualifications and experience. The Department of Biological Sciences at the University of Illinois at Chicago offers a range of academic-related benefits.

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

ASSISTANT/ASSOCIATE PROFESSOR OF PHARMACOLOGY AND TOXICOLOGY
The Department of Pharmacology and Toxicology at the University of North Dakota School of Medicine invites nominations and applications for a tenure-track position at the ASSISTANT or ASSOCIATE PROFESSOR level. The position is available to begin January 1, 1997. Applicants should have a Ph.D. in pharmacology and/or toxicology or related discipline and/or M.D. with significant research experience. The successful candidate will be expected to teach, conduct research, and provide administrative leadership in the Department of Pharmacology and Toxicology. The applications will be reviewed in a timely manner, and a successful candidate should be available to begin on or before January 1, 1997.

Applications will be accepted until the position is filled, but review of applications will begin October 31, 1996. The University of North Dakota is an Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR
BIOCHEMISTRY
Applications are invited for a tenure-track faculty position at the ASSISTANT PROFESSOR level in the Department of Chemistry at the University of Nevada, Reno. The successful applicant will actively participate in the Ph.D. degree program in biochemistry and will be expected to develop a nationally recognized research program within areas of the applicant's current research interests. Applicants working on metals and free radicals in protein and nucleic acid biochemistry are encouraged to apply. Teaching responsibilities will include upper- and graduate-level courses in biochemistry and general chemistry. The successful candidate will have a Ph.D. and postdoctoral experience required. A curriculum vitae, outline of planned research, statement of teaching philosophy, and three letters of recommendation should be sent to:

Biochemistry Search Committee, Department of Chemistry, University of Nevada, Reno, NV 89557

The University of Nevada, Reno is an Equal Opportunity/Affirmative Action Employer.

California Institute of Technology invites applications for a tenure-track position as ASSISTANT PROFESSOR in the field of inorganic chemistry. The initial appointment will be for four years. Outstanding individuals with a Ph.D. and a strong commitment to research and teaching are encouraged to apply. A curriculum vitae, publication list, a description of proposed research, and three letters of recommendation to:

Professor William G. Daemen, Chair, Search Committee, Department of Chemistry, California Institute of Technology, Pasadena, CA 91125. Applications should be received by November 15, 1996. The California Institute of Technology is an Equal Opportunity/Affirmative Action Employer.

DARTMOUTH COLLEGE
The Program in Cognitive Neuroscience and The Department of Psychology at Dartmouth College invites applications for two open positions in the area of human cognitive neuroscience starting in the fall of 1997. Candidates must be experienced in some aspect of cognitive neuroscience research and committed to excellence in teaching. The two openings, one is at the ASSISTANT PROFESSOR level, and one is OPEN AS TO RANK. For candidates at the Assistant Professor level, postdoctoral training is highly desirable. The College is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities. Applications will be reviewed after November 15, 1996, and continue until the positions are filled. For further information contact: Michael S. Gazzaniga, Professor of Psychology, Chair, Search Committee, Program in Cognitive Neuroscience, Dartmouth College, Hanover, NH 03755-3847.

SCIENCE • VOL 273 • 30 AUGUST 1996
**ILLINOIS STATE POLICE**
**RESEARCH & DEVELOPMENT COORDINATOR**
Springfield, Illinois
*Equal Opportunity Employer*

The Research & Development Laboratory of the Illinois State Police, Division of Forensic Services, is seeking an R&D Coordinator to conduct research in DNA analysis; develop procedures in DNA analysis of forensic evidence; coordinate statewide integration of DNA technology into the forensic biology program; coordinate research efforts in the DNA specialty; and maintain the highest level of quality control. Anticipated hiring date is January 1, 1997.

Completion of four years of college, preferably supplemented by a Master's degree with emphasis on coursework in one of the biological, natural, physical or forensic sciences or related disciplines. Requires two years of forensic science work experience such as can be gained at the advanced caseworker level.

Perform original and applied research to develop/optimize DNA analysis procedures; participate in collaborative studies; complete project proposals and reports for research conducted. Coordinate the implementation of DNA technology to staff labs; provide technical training to staff on evidence handling, court testimony, and analytical procedures; complete documentation for training programs. Assist with development and documentation of quality assurance procedures and design and participate in validation studies for DNA analysis. Perform DNA casework. Assist with budget projections and preparation.

**Salary:** $30,432 - $64,584 (Annual)
**Respond to:** Ms. Susan Johns
(by October 1, 1996)
**Illinois State Police**
**1810 S. Main Street**
**Morton, IL 61550-2983**
**Fax:** 309-263-8424

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**MOLECULAR BIOLOGY SCIENTIST**

Medtronic, Inc., a recognized leader in implantable, life-sustaining biomedical products, has an opening for an experienced Molecular Biology Scientist. This accomplished person will provide scientific and strategic leadership to Medtronic in the areas of molecular biology and genetic engineering. The position is at the Center for Biomaterial Research (CBR) located at our Promone facility, in Brooklyn Center, MN, a suburb of Minneapolis.

He/she will establish a molecular biology laboratory to complement the existing cell biology laboratory and conduct applied research to determine what opportunities exist to leverage Medtronic's technologies in the emerging field of molecular medicine. The successful candidate must possess a graduate technical degree (PhD) in the biosciences area, preferably in molecular or cell biology with a research focus that made use of advanced molecular biology techniques.

Additional qualifications include a minimum of 5 years experience conducting independent research with a preferred minimum of 2 years of industrial based research. A strong publication record and experience in providing technical direction to others is also required. A solid understanding of biomaterials would be an asset.

Please reference Job #09792, Molecular Biology Scientist, in your response. Send resume in confidence to: Medtronic Promone Division, Human Resources-G230, 6700 Shingle Creek Parkway, Brooklyn Center, MN 55430. Equal Opportunity Employer.

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**Oregon Health Sciences University**
**Biochemistry & Molecular Biology**
**ASSISTANT PROFESSORS (2)**

The Department of Biochemistry and Molecular Biology at OHSU, School of Medicine, is committed to a period of significant expansion. We are recruiting tenure track faculty at all levels, although our emphasis is on junior colleagues. We wish to recruit outstanding young scientists studying problems of central interest to biochemists and molecular biologists.

We will offer attractive start-up packages, competitive salaries, and the opportunity to participate in the growth and development of a dynamic and interactive department in a highly desirable location. Faculty will be expected to establish competitive research programs and assist in graduate and medical school teaching. Applicants at the Assistant Professor level should have a Ph.D. with several years of postdoctoral experience. Applications should be received by September 30, 1996.

Interested applicants should send a copy of their curriculum vitae, a description of their research plans and interests, and the names of three references to:

**Professor Jack H. Kaplan, F.R.S.**
**Faculty Search**
**Department of Biochemistry and Molecular Biology**
**Oregon Health Sciences University**
**3181 S.W. Sam Jackson Park Road, L224**
**Portland, OR 97201-3098**

OHSU is an Affirmative Action/Equal Opportunity Employer.

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**UNIVERSITY OF CALIFORNIA, DAVIS**
**THE SCHOOL OF MEDICINE**
**BASIC SCIENCE DEPARTMENTS IN THE SCHOOL OF MEDICINE**

**BIOLOGICAL CHEMISTRY**
**CELL BIOLOGY**
**HUMAN ANATOMY**
**HUMAN PHYSIOLOGY**
**MEDICAL MICROBIOLOGY**
**IMMUNOLOGY**
**PATHOLOGY**
**PHARMACOLOGY**
**TOXICOLOGY**

The Basic Science Departments, School of Medicine, at the University of California, Davis, are soliciting applications for four full-time tenure track positions at the Assistant Professor level. Applicants should have the Ph.D. and/or M.D. degree and at least two years of productive postdoctoral experience. Individuals selected will be expected to build a successful, independent research program and to achieve excellence in the teaching of basic sciences to medical and graduate students. The most important criteria in the consideration of applicants are: 1) a record of excellence, creativity and initiative in research, which establishes a strong potential to build a vigorous and competitive research program; and 2) a demonstrated ability to communicate effectively as a teacher. Research areas of particular interest include, but are not limited to: cell signaling, molecular recognition, structural biology, integrative biology, pathogenic mechanisms, and molecular pharmacology. Letters of interest, curriculum vitae, up to three representative reprints, synopses of research plans (past, present, and future goals), summary of teaching experience/philosophy, and the names/addresses of four references should be forwarded to: Chair, Basic Sciences Search Committee, c/o Don Martensen, School of Medicine, Dean's Office, University of California, Davis, CA 95616. These positions will be "Open Until Filled," applications will be accepted until December 31, 1996. For additional information see our web site at: http://medsponsoredprograms.ucdavis.edu/pages/SOMOR/recruit.html. The University of California is an Equal Opportunity/Affirmative Action Employer.
VICE CHAIR FOR RESEARCH DEPARTMENT OF PEDIATRICS

The Department of Pediatrics, Case Western Reserve University (CWRU) is seeking a nationally recognized scientist at the ASSOCIATE PROFESSOR tenure-track level, for the position of Vice Chair of Research. This position will include: 1) the development of a developmental, cell, or molecular biology program with major interdisciplinary components; 2) development of the infrastructure of CWRU; 2) increasing the overall Departmental grant portfolio through mentoring of junior and senior faculty and maximizing inter-departmental collaborations and training initiatives; and 3) working directly with the Chairman to develop an overall Departmental thematic research program, which includes remodeling of research infrastructure, development of new wet and dry laboratory space, core facility coordination, and grant development.

ASSOCIATE PROFESSOR—Reproductive Biology of Horticultural Crops, tenure-track, research, and teaching.

Department of Horticulture, Purdue University. The successful candidate will be expected to develop a nationally recognized research program supported by external funds and utilizing the tools of molecular genetics, biochemistry and/or cellular biology to address problems related to the reproductive biology of horticultural crops. The successful candidate will be expected to develop a section of a graduate course in Plant Growth and Development that emphasizes reproductive development. A Ph.D. in horticulture, plant biology, or a related discipline is required, and postdoctoral research experience is desirable. Screening of applicants will begin October 31, 1996. Applicants should submit curriculum vitae, transcripts of all undergraduate and graduate work, a statement of research interests, and three letters of reference to: Dr. Robert J. Joly, Search Committee Chair, Department of Horticulture, Purdue University, 650 Horticulture Building, West Lafayette, IN 47907-1165.

JUNIOR FACULTY POSITION

The Vascular Research Division of the Department of Pathology at the Brigham and Women’s Hospital, Harvard Medical School is searching for an ASSOCIATE PROFESSOR (tenure-track) to conduct an independent basic research program in the pathogenesis of vascular disease, with an emphasis on receptor/signaling molecule biology in vascular cells, and to participate in ongoing clinical research programs. Candidates must hold a M.D., Ph.D., or M.D.-Ph.D. (candidates with research interests in vascular disease) with three to five years of postdoctoral training in experimental cardiology or vascular biology. Applications should include a curriculum vitae and summary of research interests, and ask three referees to submit letters to: Dr. Michael A. Gimbrone, Jr., Director, Vascular Research Division, 75 Francis Street, Brigham and Women’s Hospital, 221 Longwood Avenue, LMRC 401, Boston, MA 02115-5817.

CORNELL UNIVERSITY

The Department of Chemistry is searching for a tenure-track faculty member at the ASSOCIATE PROFESSOR level. Outstanding candidates will be considered with research interests in non-biological chemical problems focused in areas other than x-ray crystallography or NMR determination of structure. The successful applicant will be expected to teach general and advanced topical courses and carry out an effective research program. A Ph.D. degree is required, and postdoctoral experience is preferred. Applicants should submit a graduate transcript, current curriculum vitae, and three letters of recommendation. Salary and rank will be commensurate with qualifications. No applications will be accepted after November 15, 1996.

ASSISTANT PROFESSIONAL POTATO GENETICS AND BREEDING UNIVERSITY OF MINNESOTA, ST. PAUL

Applications are invited for a 12-month tenure-track position in potato genetics and breeding at the ASSOCIATE PROFESSOR level. Required: Ph.D. in horticulture, plant breeding or related discipline with demonstrated expertise in plant genetics. Desirable: graduate-level course work and experience in quantitative genetics, plant cytology, molecular biology, en- tomology, and molecular biology, including the use of molecular markers in quantitative genetics and plant breeding; experience in potato breeding or production; and effectiveness in teaching and research. Successful candidates will be expected to conduct individual and collaborative research on the genetics of pest and disease resistance and other traits that are important in sustainable potato production, and professional service. Applications (three references, curriculum vitae, and position description) must be received before December 1, 1996; interviews will be conducted at the Potato Genetics Search Committee, Department of Horticultural Science, University of Minnesota, Saint Paul, MN 55108. Applicants must receive their applications before September 30, 1996. The University of Minnesota is an Equal Opportunity Employer and Employer.

THREE TENURE-TRACK BIOLOGY POSITIONS

The Department of Biology at James Madison University invites applications for TENURE-TRACK, ASSOCIATE PROFESSOR positions in 1) Comparative Morphology; 2) Ecology; and 3) Behavioral Neurobiology. The successful candidate is expected to begin teaching and research responsibilities on or before August 1997. In addition to advanced courses in areas of expertise, the morphologist will teach cadaver-based human anatomy, the ecologist will teach general ecology, and the neurobiologist will teach a neuropharmacology course. Applicants must show evidence of excellent teaching and communi- cation skills and a strong potential for establishing a re- search program involving undergraduates and master’s students. This is a nine-month position with a successful year-long commitment to the development of innovative techniques in instruction and is committed to promoting collaborative research between faculty and students. Ph.D. required. See http://www.jmu.edu/biology/jobs.html for more information. Submit curriculum vitae, summary of research interests and goals, and statement of teaching philo- sphy. Arrange to have three letters of recommenda- tion sent to: Dr. James Madison University, Harrisonburg, VA 22807. Applications received after October 7, 1996, will be considered. Contact: Dr. James Madison University, Harrisonburg, VA 22807. Interested candidates are encouraged to apply at the University's Online Application System: http://www.jmu.edu/apply

ASSISTANT PROFESSOR University of Alabama at Birmingham

The Department of Biochemistry and Molecular Ge- netics at the University of Alabama at Birmingham is seeking applications for a TENURE-TRACK position from individuals who work with Drosophila. The specific area of research is open; individuals working on any aspect of signal transduction, biochemistry, cell or molecular biology are encouraged to apply. Applicants should forward a curriculum vitae, statement of research plans, and at least three letters of recommendation by October 10 to: Dr. Janila I. Horabin, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham, Birmingham, AL 35294. An Equal Opportunity/Affirmative Action Employer.

TRANSGENIC TECHNICIAN

We are seeking a technician with experience in gener- ating transgenic mice to run a multi-user facility for the generation of transgenic and knockout lines. The successful candidate must be proficient in oocyte injection and reimplantation pro- cedures. Will generate transgenic animals as well as super- visor a junior technician in these procedures. Salary com- prises pro rate with experience. Please send curriculum vitae and a brief description of your experience in a transgenic mouse facility. Send your letter of application to: Dietmar Kappes, Fox Chase Cancer Center, c/o Human Resources MAS, 7701 Burkeholme Avenue, Philadelphia, PA 19111. FAX: 215-728-2412; Telephone: 215-728-5374; Email: dkappes@fccc.edu, Equal Opportunity Employer.

GRANTS PROGRAM OFFICER INFORMATION SYSTEMS

Howard Hughes Medical Institute, the nation’s largest private philanthropic organization, conducts scientific research at 10 schools and research centers across the United States. Currently, we have an opening for a Program Officer at our headquarters in Chevy Chase, Maryland.

Responsibilities involve managing the development of new and ongoing information systems on education and research grant competitions, awards, and outcomes; preparing summaries of information system based data for program management reports; and coordinating all phases of the development and production of grants publications. Duties also include identifying and implementing electronic and technological resources and continuing the development and growth of the verification and evaluation systems.

Requirements include a Ph.D. in biology or equivalent experience in a scientific field and at least five years of management experience. Experience with the creation and analysis of large databases in areas of science education, training and research; thorough knowledge of hardware, software, and communication technologies; and experience with program budget and publications management processes. Excellent communication, analytic, and writing skills are essential.

HHMI offers a competitive salary and excellent benefits package. Please submit your resume and salary require- ment to: Program Officer, Information Systems, Howard Hughes Medical Institute, Attn: RP, Human Resources Department, 4000 Jones Bridge Road, Chevy Chase, MD 20815-6789. Email: http://www.hhmi.org, Equal Opportunity Employer.

Hemeton Medical Institute

DIVISION OF BIOLOGY CALIFORNIA INSTITUTE OF TECHNOLOGY

The California Institute of Technology Biology Division is accepting applications for one or more tenure-track ASSOCIATE PROFESSOR POSITIONS in the area of immunology. The term of initial appointment is normally four years, and appointment is contingent upon continued excellence in research and teaching. Applicants are expected to participate in immunology teaching as well as to generate a creative and productive research program that will interface with the diverse scientific interests represented in the Biology Division.

Applicants should submit a curriculum vitae, list of publications, and a brief statement of teaching experience, research interests and plans. In addition, the candidate should arrange to have three letters of reference sent to the search committee to coincide with receipt of the application. All materials should be sent to: Professor David Patterson, Immunology Search Committee Division of Biology 216-76 California Institute of Technology Pasadena, CA 91125

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

ASSISTANT OR ASSOCIATE PROFESSOR DEPARTMENT OF PHARMACOLOGY

A TENURE-TRACK position is available for an energetic individual taking a molecular and/or cellular approach to molecular and cellular research programs. Candidates should have strong evidence of sustained creative- ity and a temperament that facilitates collegial and collaborative interactions. Qualified Ph.D. or M.D. can- didates with a research emphasis in the areas of cellular biology or cell growth regulation, and with a track record of research funding, are especially encouraged to apply. The successful candidate will receive excellent, new labo- ratory space, and flexible start-up funds in addition to the experience fostering his or her professional development. Our multi- departmental graduate programs provide a large pool of graduate students, and the successful candidate will also participate in the educational programs. Emory University is located in a wooded, residential area in the outskirts of Atlanta, and has undergone rapid growth in molecular and cellular biomedical research programs. Candi- dates should send curriculum vitae, repre- sentative reprints, a summary of current research and future plans, and names of three or more references to: Raymond Dingledine, Chairman, Department of Pharmacology, Emory University School of Medicine, Atlanta, GA 30322, Equal Opportunity Employer.
AMERICAN SOCIETY FOR MICROBIOLOGY
AND
NATIONAL CENTER FOR INFECTIOUS DISEASES
1997 POSTDOCTORAL RESEARCH ASSOCIATES PROGRAM

Up to eight associate positions will be awarded by the American Society for Microbiology for full-time research on infectious diseases which cause significant public health problems. Associates will perform research in residence at the National Center for Infectious Diseases (NCID) which is headquartered at the Centers for Disease Control and Prevention (CDC) in Atlanta, GA. In addition to Atlanta, NCID operates laboratories in Ft. Collins, CO, Anchorage, AK, and San Juan, Puerto Rico.

Eligible fields of study include:
- Bacterial and Mycotic Diseases
- Viral and Rickettsial Infections
- Nanomicrobial Infections
- HIV/AIDS
- Vector-borne Infectious Diseases
- Sexually Transmitted Diseases
- Parasitic Diseases

The associate positions are limited to individuals who either earned their doctorate degree (Ph.D., Sc.D., M.D., D.V.M., or D.D.S.) or have completed a primary residency after May 1994. Exceptions may be made for those with more experience. All qualified applicants are eligible to apply. While citizens of other countries who have a full command of the English language will be considered, preference will be given to qualified U.S. citizens and permanent residents. Qualified applicants will receive consideration without regard to race, creed, age, sex, or national origin. Diversity among associates is encouraged. The program provides an annual stipend of $39,000 with a medical benefits package and up to $4,000 for professional development.

The application deadline is December 1, 1996. The Postdoctoral Research Program is administered by the American Society for Microbiology. All inquiries regarding this program should be addressed to: ASM/NCID Postdoctoral Research Program, American Society for Microbiology; 1325 Massachusetts Avenue, N.W., Washington, D.C. 20005; Fax: (202) 924-9329; E-mail: TrainingInformation@asmusa.org. The booklet and Application is available on ASM’s home page at http://www.asmusa.org/education/ncid2e.htm.

ASM
AMERICAN SOCIETY FOR MICROBIOLOGY

CDC/NCID
CENTERS FOR DISEASE CONTROL AND PREVENTION
CENTRE FOR INFECTION DISEASES

FACULTY POSITIONS IN STRUCTURAL BIOLOGY
Columbia University
Department of Biological Sciences

The Department of Biological Sciences of Columbia University is expanding its faculty to include scientists with research programs in the area of structural biology. Two positions are currently available at junior and/or senior levels. Preference will be given to individuals with expertise in the application of X-ray crystallography or NMR technology to protein and/or protein-nucleic acid structure. Substantial start-up packages and extensive laboratory space will be made available to successful candidates. Further information may be obtained from Alex Tzagoloff, Search Committee chair.

Nominations and applications for senior positions should be accompanied by a curriculum vitae. Applicants for junior positions should, in addition, provide a statement of research goals and arrange to have 3 letters of reference sent as soon as possible.

The deadline for applications is November 1, 1996. All materials should be addressed to:

Ms. Sadiah Kaufman
Department of Biological Sciences
Columbia University
600 Fairchild, Mail Code 2402
New York, NY 10027

Do not contact the Chair directly.

Columbia University is an affirmative action/equal opportunity employer.
PRODUCTS DEVELOPMENT ASSISTANT

Assistant for data collection related to products functions on various geological formations and underground conditions used by petroleum exploration, well drilling, and selection of new products for development based on the analysis of industrial visits and monitoring and performing quality control of products in the current area of the firm. Requirements: B.S. in geology. Experience: two years in the job or two years as a geologist. Experience must include the area of petroleum exploration, utilization of tools and equipment used in the geophysical processes, and in the underground water resources investigation. Six months of experience is required in monitoring the performance of tools used in continuous and various geological formations and underground conditions. Data collection, modification, and preparation of relevant summary reports about performance of the tools and equipment used in petroleum exploration. Must be in the assignment of available tools from alternative means for the implementation of underground drilling of various geological formations and underground conditions, as well as six months of experience in quality control and drilling techniques, and the selection of cutting tools from available pool of alternatives. Please send resume and proof of requirements to duplicate (no calls): ES Sp Pgrms Reference Number 196, Ohio Bureau of Employment Services, P.O. Box 1618, Columbus, OH 43216. Those who are not authorized to work permanently in the U.S. need not apply.

ASSOCIATE PROFESSOR of Wildlife Science. Tenure-track, nine-month position for a broadly trained vertebrate ecologist with experience in wildlife-habitat relationships and/or wildlife management. Ph.D. required. Must be able to teach courses in a vertebrate ecology specialty, and in wildlife-forest relationships, and be qualified to teach undergraduate courses. Additional duties will include advising graduate and undergraduate students. The successful applicant’s teaching and research are expected to contribute to an increasing emphasis in interdisciplinary approaches with the College and with other university programs. Although the College is seeking a person at the assistant professor rank, appointment may be made at the rank of associate professor if the applicant’s professional and/or administrative qualifications and/or a substantial record of research are commensurate with the qualifications of the individual. Send cover letter, course transcripts, and three letters of recommendation to: Dr. David A. Manwell, Chair of Wildlife Science Committee, College of Forest Resources, University of Washington, Box 352100, Seattle, WA 98195-2100. Email: auklet@u.washington.edu. Deadline for applications: 1 October 1996. The University of Washington is an equal opportunity/affirmative action employer. Women and minority candidates are strongly encouraged to apply.

DIRECTOR VASCULAR BIOLGIC UNIT

The Department of Medicine at Indiana University School of Medicine requests applications for an endowed chair for a Director of a new Vascular Biology Unit. The unit will have both basic research and clinical missions and function in a school wide interdisciplinary and interdepartmental basis. Ph.D. and/or M.D. and/or Ph.D. must have a strong record of research accomplishment and experience in directing or participating in vascular biology project type efforts. In addition to his/her own research portfolio, the Director will be expected to facilitate the creation of new research and clinical programs, taking advantage of extant expertise in the IU School of Medicine. Tenure-track rank of ASSOCIATE or FULL PROFESSOR and/or Distinguished Professorship with experience. Please send curriculum vitae to: Alain Baron, M.D., Professor of Medicine, Director, Division of Endocrinology and Metabolism, Indiana University Medical Center, 800 Market Street, Indianapolis, IN 46202-5111. FAX: 317-278-0658; Email: alainb@medicine.dmi.iupui.edu. Indiana University is an Affirmative Action/Equal Opportunity Employer and Contractor. Minority/Female.

POSITIONS AT SANDIA NATIONAL LABORATORIES

The Combustion and Physical Sciences Center at Sandia National Laboratories, Livermore, California, has two current openings for Ph.D. STAFF SCIENTISTS in experimental research. One focus area is the elucidation of chemical, transport, and temperature phenomena in hypersonic systems. Expertise in the application of laser- and mass-spectrometric measurements to chemical systems is required. The second focus area involves the development and application of broadly applicable spectroscopic measurement techniques. Candidates must have a broad range of skills in chemistry and/or biochemistry. Applicants for these positions should send a resume, with names of references, a statement of research expertise, and copies of college transcripts to: Sandia National Laboratories c/o Anna Isham, HR Department CA0014 P.O. Box 5000 Livermore, CA 94551-0969 U.S. citizenship normally required. Sandia National Laboratories is an Equal Opportunity/Affirmative Action Employer.

STAFF SCIENTIST I—Responsible for working with Quality Control and R&D organizations to develop methods necessary to characterize manufacturing process streams for major biotechnology company, including the support of new process development. Duties include hands-on bench activities and coordinating stream characterization studies of other scientists. Minimum requirements include a Ph.D. in biotechnology and four years’ experience with analytical techniques. Experience with biological and chemical methods required. Experience with cell characterizations, bioassays, and mass spectrometry would be a plus. Position is available immediately. Send resume and salary requirements to: P.O. Box 2001, Health Sciences Center, University of Virginia, Charlottesville, VA 22906-0011. Sandia National Laboratories is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL ASSOCIATE POSITIONS

Three POSTDOCTORAL ASSOCIATE positions available immediately to study the immune regulation and pharmacology of serotonin receptors, and to generate knockout mice. Excellent writing skill is essential. Send resume and names and addresses of three references to: Dr. Jean C. Shih, Department of Molecular Pharmacology, School of Pharmacy, University of Southern California, 1985 Zonal Avenue, Los Angeles, CA 90033, University of Southern California. Women and minority candidates are particularly encouraged to apply.

PLANT SCIENTIST

NovoFlora, Inc., is an early stage plant biotechnology company developing a range of commercial animal and human pharmaceutical products. An immediate opening exists for a Ph.D. level plant scientist with expertise in plant tissue culture, post-harvest physiology, and/or germination and tissue culture. Responsibilities includeSend us a copy of your resume, name, and telephone numbers of three references, and statement of research interests to: Dr. Michael S. Dobres, NovoFlora, Inc., University City Science Center, Suite 350, Philadelphia, PA 19104. FAX: 215-387-4311.

Director of Plant Pathology, Box 7616, North Carolina State University, Raleigh, NC 27695-7616; Telephone: 919-515-6985; Fax: 919-515-7716; Email: jbaron@med.miami.edu. North Carolina State University is an Equal Opportunity Employer.

GRADUATE, POSTDOCTORAL, SABBATICAL TRAINING OPPORTUNITIES IN BIOLOGY OF TRANSGENIC PLANTS

DOE/NSF/USDA-sponsored FELLOWSHIPS at North Carolina State University and CIBA GEIGY Agricultural Biotechnology Research Unit are available to study the biology of transgenic plants. Areas include: (1) host plant resistance to important crop species and (2) epige- netic phenomena influencing transgene expression and inheritance. Further information and application materials available from: Dr. Robert J. Barlow, Department of Plant Pathology, Box 7616, North Carolina State University, Raleigh, NC 27695-7616; Telephone: 919-515-6985; Fax: 919-515-7716; Email: jbaron@med.miami.edu. North Carolina State University is an Equal Opportunity Employer.

RESEARCH SCIENTIST

RESEARCH SCIENTIST position available to study human ovarian carcinogenesis and molecular basis of drug resistance in ovarian cancer models. Applicants should have background in molecular biology and biochemistry. We are located in the suburbs just outside of Philadelphia in a newly constructed research center equipped to support state-of-the-art biomedical research. Send curriculum vitae and references to: Debbie Savage, Human Resources Specialist, The Lankenau Hospital, Employment Office, 100 Lancaster Avenue, Wynnewood, PA 19096, Equal Opportunity Employer.

PUBLIC HEALTH SCIENTIST, M.P.H./M.S./M.A. (B.A./B.S. if know science and public affairs) needed for epidemiology, clinical studies, toxicology, risk assessment, environmental and occupational health. PhD. Could manage projects, publish, teach, travel, work on high-profile policy-setting public health and environmental issues. Send letter, curriculum vitae, two-page writing sample, and references to: Dr. John H. Haggard, Clinical Research Center, 111 N Street, NW, Washington, DC 20036, code: KS.

VASCOcular BIOLOGY THE UNIVERSITY OF VIRGINIA

Outstanding Opportunities for Graduate Students and Postdoctoral Fellows

The University of Virginia offers a multidisciplinary program in Vascular Biology emphasizing physiology, pharmacology, molecular biology, cell biology, and biochemistry. Thirty-one investigators are participants in a training program with a long history of successful mentoring of both graduate students and postdoctoral fellows. Our program strengths are in the areas of biology, cell signaling and microcirculation. Laboratory investigations are underway in cell-cell communication, cardiac, smooth muscle and endothelial cell electrophysiology, smooth muscle cell signal transduction and leukocyte-endothelial cell interactions. Positions include stipend, health insurance, and travel. Details of the faculty interests, a description of their training, and specific forms and procedures can be found on World Wide Web at: http://www.med.virginia.edu/inter/div/cvc. Interested and competitive applicants can also apply directly to: Dr. Brian R. Duling, Developmental Neurobiology and Anatomy, University of Virginia, P.O. Box 10011, Health Sciences Center, University of Virginia, Charlottesville, VA 22906-0011. These positions are restricted to permanent residents or citizens of the United States. The University of Virginia is an Equal Opportunity Employer.

POSTDOCTORAL ASSOCIATE POSITIONS

Three POSTDOCTORAL ASSOCIATE positions available immediately to study the molecular pathogenesis and genetics of epithelial cancer. Experience in molecular and/or cellular biology preferred. Send curriculum vitae and names of three references to: Dr. Kathleen R. Cho, Department of Pathology, The Johns Hopkins University School of Medicine, Room 659 Ross Research Building, 720 Rutland Avenue, Baltimore, MD 21205. Email: kcho@welchlink.welch.jhu.edu. Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION

NIH-funded postdoctoral position available immediately to study the molecular pathogenesis and genetics of epithelial cancer. Experience in molecular and/or cellular biology preferred. Send curriculum vitae and names of three references to: Dr. Kathleen R. Cho, Department of Pathology, The Johns Hopkins University School of Medicine, Room 659 Ross Research Building, 720 Rutland Avenue, Baltimore, MD 21205. Email: kcho@welchlink.welch.jhu.edu. Affirmative Action/Equal Opportunity Employer.
FACULTY POSITION
MOLECULAR BIOLOGIST OF MUSCULOSKELETAL TISSUES

The Department of Orthopaedics and the Department of Microbiology and Molecular Genetics at UMDNJ-New Jersey Medical School invite applications for a tenure-track faculty position. Preference will be given to applicants with research programs in cell and molecular biology relating to musculoskeletal tissue.

The successful candidate will be expected to establish an independent research laboratory within the Department of Orthopaedics in close collaboration with its established Biomechanics/Biomaterials Unit and the Department of Microbiology and Molecular Genetics. Appointment is expected at the level of Assistant Professor; however, distinguished applicants at senior levels will also be considered with support commensurate with the candidate’s qualifications and experience.

Applicants should submit a complete curriculum vitae including future research plans to:
Fred E. Behrens, M.D., Chairman, Department of Orthopaedics, New Jersey Medical School - UMDNJ, Doctors Office Center, 90 Bergen Street, Suite 5200, Newark, New Jersey 07103.

The UMDNJ is an Affirmative Action/Equal Opportunity Employer, m/f/d/v, and a member of the University Health System of New Jersey.

Faculty Position (Rank Open)
Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign

The Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign invites applications for a regular, full time, tenure- or tenured faculty position in biomaterials. To be considered for a tenure position, the applicant must have recognized national and international stature. Applicants for a junior position are preferred and should have qualifications for teaching materials science and engineering at the undergraduate and graduate levels. Candidates will be expected to develop an outstanding research effort of their own. Successful candidates must have a distinguished record of accomplishment in one or more of the areas specified.

Applicants must hold an earned doctorate in an appropriate field. Salary and rank will be commensurate with qualifications. The proposed starting date for this position is Fall 1997 or earlier. All interested applicants are asked to provide a professional curriculum vitae including teaching experience, a list of publications, and an outline of a few pages describing their proposed program of research. Candidates for tenure-track positions should also request that three (3) letters of reference be sent directly to the department. Candidates for tenured positions should include the names, addresses, and telephone numbers of at least three (3) references. To ensure full consideration, applications must be received prior to December 15, 1996. Interviews may take place during the application period, but a final decision will not be made until after the deadline for applications.

Applications should be addressed to: Chair, Faculty Search Committee, Department of Materials Science and Engineering, 1304 W. Green Street, Urbana, Illinois 61801. Telephone: (217) 333-1440. Fax: (217) 333-2736.

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

VIRAL VACCINE RESEARCH

Wyeth-Lederle Vaccines and Pediatrics (WLVP), a member of the Wyeth-Ayerst family, is recognized internationally as a leader in the research, development and manufacture of vaccines for prevention of viral and bacterial diseases.

Join Wyeth-Lederle Vaccines and Pediatrics for the opportunity for professional growth. We seek experienced candidates to staff key positions in Viral Immunology Research at our Pearl River, New York R & D facility. These positions require a specialization in Immunology or Virology.

RESEARCH IMMUNOLOGIST/SCIENTIST

Mucosal Immunologist

Cellular Immunologist
Ph.D. with 2-3 years postdoctoral experience in humoral and cellular immunology. Knowledge of mucosal systems an asset. Experience with viral agents and human cell assays preferred.

Additional positions are available in Viral Vaccine Research for:

SR. RESEARCH ASSOCIATES/RESEARCH ASSOCIATES

BS or MS Molecular Biology or Biology or Biochemistry with 1-3 years experience in the following areas:
- Gene Expression and DNA/RNA cloning analysis and manipulation
- Virus propagation, characterization and purification

WLVP offers the ideal environment to spark your enthusiasm and challenge your ingenuity. In support of your research efforts you will have and use state-of-the-art resources and equipment. The free flow of scientific and technical knowledge is encouraged by frequent in-house seminars and company sponsored participation in conferences and worldwide symposia. Our research scientists are encouraged to establish their reputations by developing a strong record of publications. We offer competitive compensation and benefits package, including savings plan. If you are ready to contribute to a challenging program, send your resume including salary history to: Wyeth-Lederle Vaccines and Pediatrics, Human Resources, #140, 401 North Middletown Rd., Pearl River, NY 10965.

Wyeth-Lederle Vaccines and Pediatrics
Promoting families Through Immunization®

Principals Only Please.
An Equal Opportunity Employer.

R&D DIRECTOR

Direct the activities of scientific and engineering groups in the R&D of chemical/biochemical processes for the production of chiral intermediates and bulk pharmaceuticals. We seek highly motivated individuals who desire to be integral members of a multidisciplinary team in an entrepreneurial environment. Business growth has created openings for experienced R&D and sales personnel in the following positions:

GROUP LEADER, BIOCATALYSIS

Lead a team of scientists engaged in biocatalysis research for the production of chirally pure intermediates and bulk active drugs. The activities of this team range from biocatalyst discovery and improvement to application research. Requires a Ph.D. in Biochemistry, with a strong background in enzymology and a working knowledge of molecular biology and its application to protein engineering. 3-5 years hands-on industry experience, including supervisory responsibilities, is required. A strong knowledge of enzyme kinetics and thermodynamic principles is also essential.

GROUP LEADER/MANAGER, AGROCHEMICAL R&D

Develop and implement agrochemicals business plan through proprietary chemistry and production. Responsibilities include coordination and synthesis, testing, patent research and analysis, and liaison with industry participants. Should have Ph.D. in Organic Chemistry, good communication and supervisory skills, and relevant industry experience including a strong knowledge of current agrochemicals.

DIRECTOR OF SALES

Responsible for building a pharmaceutical sales force focused on the US HIV/AIDS market. Must have experience building a sales team, incentive systems, and effectiveness measurement systems. Successful candidate will have a minimum of 10 years pharmaceutical sales/marketing experience.

We offer competitive salaries and generous benefits including a 401(k) program. Our modern facility in Central NJ, between NYC and Philadelphia, provides an attractive environment conducive to personal growth and achievement.

Interested applicants should send a detailed resume, indicating position # and salary requirements, to: HR Manager, Dept. N9L, Celgene Corporation, 7 Powder Horn Drive, Warren, NJ 07059, or fax it to (908) 271-4184. No phone calls or agencies, please.

Celgene Corporation
Is an international leader in the development and application of biotechnology for the production of chiral intermediates and bulk pharmaceuticals. We seek highly motivated individuals who desire to be integral members of a multidisciplinary team in an entrepreneurial environment.
MS/BS BIOCHEMIST
Applicants should have experience with enzyme kinetics, assay development, protein purification and kinetics computer software. (Code: CP)

We offer competitive salaries and benefits in addition to an intellectually stimulating environment. Please send resume to: Human Resources, Agouron Pharmaceuticals, Inc., 10350 N. Torrey Pines Road, La Jolla, CA 92037-1020; e-mail: jobs@agouron.com. Home page: http://www.agouron.com. EOE.
**Director of CNS**

Gensia, Inc. is a research-based publicly-held biopharmaceutical company. Our mission is focused on the discovery, development, and commercialization of innovative drug and device products for the acute-care market. Gensia has recently secured a major collaborative agreement with Pfizer for the discovery and development of novel analgesic compounds. Consequently, Gensia is searching for experienced and innovative Director of CNS with a proven track record in the pain area, to head this program and the other activities of the CNS department.

The successful candidate would have a record of achievements demonstrating an ability to create, lead, and manage research programs in a highly competitive and dynamic scientific environment. Personal attributes will include integrity, high scientific standards, goal orientation, the ability to motivate a strong technical staff, and the desire to work as part of a team. This position requires a Ph.D. in biological science (pharmacology, biochemistry, molecular biology, or related sciences) plus several years of industrial experience.

Gensia, Inc. offers a competitive compensation package including a stock option program and comprehensive benefits, in a fast-paced, highly stimulating environment. The Research Department occupies an outstanding new, state-of-the-art facility of over 80,000 square feet, located in San Diego, California. Qualified applicants are invited to send a resume with cover letter to: Gensia, Inc., Human Resources, CODE: CNS/GT, 9360 Towne Centre Drive, San Diego, CA 92121-3030, or fax to 619-622-5540 or email in ASCII format to human.resources@gensia.com.

We are proud to offer equal employment opportunities and a culturally diverse workplace.
The Science of Agricultural Genetics

RESEARCH ASSOCIATE
Grain Traits - Industrial Products (Job #GT-603)

We seek a highly motivated and energetic individual to join a group devoted to research and product development in the area of storage carbohydrate manipulation in the seeds of crop plants. The applicant must be experienced in the contemporary techniques of molecular biology (DNA/RNA isolation, DNA sequencing, DNA/genomic library construction and screening, Northern and Southern blotting, PCR, vector construction, expression of eukaryotic proteins in heterologous systems). Familiarity with protein biochemistry techniques (cell fractionation, 1- and 2-D gel electrophoreses, Western blotting, HPLC and FPLC) will be a strong plus. Ability to work in a team environment is essential.

EDUCATION/EXPERIENCE:
- MS in biochemistry or a closely related field, or BS with 2 years of experience in the described techniques.

We offer competitive salaries and excellent, comprehensive benefits such as 401(k), tuition and relocation reimbursement.

Pioneer Hi-Bred International, Inc., is the world leader in agricultural genetics. Founded in 1926, we are a publicly held company that invests more than $115 million in research and product development. Pioneer® brand products are grown in almost every crop-producing continent in the world. At our headquarters in Des Moines, Iowa, we’re adding to our research team.

Wayne State University

CELL AND DEVELOPMENTAL BIOLOGY

The Department of Biological Sciences invites applications for tenure-track positions at the full, associate, and assistant professor level. We are seeking individuals whose primary research interest is in molecular and genetic analysis of cellular function and development. We are developing a strong interactive core of researchers with overlapping and complementary interests. Individuals working with a variety of model systems from microbial to vertebrate are encouraged to apply.

Wayne State University is one of the nation's largest research universities, and the Department of Biological Sciences is in the midst of a significant expansion which includes recently occupying a new seven-story Biological Sciences research building. In addition to generous research space, the department houses and operates animal rooms, greenhouses, and core facilities for Drosophila, imaging and microscopy, and DNA synthesis and sequencing.

Substantial space and start-up funds are available to successful candidates who will be expected to establish and maintain an extramurally funded research program and participate in departmental teaching programs.

Women and minority candidates are encouraged to apply. Review of candidates will begin immediately and continue until all positions are filled.

Send curriculum vitae, a description of current and long-range research plans, three representative papers, and the names of four references to:

Jack Lilien
Chair, Department of Biological Sciences
Wayne State University
Detroit, MI 48202

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.

Schering-Plough Research Institute

BIOTECHNOLOGY PROCESS DEVELOPMENT

CELL BIOLOGIST

We seek a talented individual to support clinical and non-clinical production of cell culture products. As a member of a diverse group of scientists working in a state-of-the-art Mammalian Cell Culture Plant, you will be responsible for providing technical support in assessing cell physiology at various stages of mammalian cell culture fermentations. This will include assisting in methods development for optimum cell propagation and scale-up, as well as preparing, maintaining and testing cell lines used in production. To qualify, you will need a BS/MS in Cell Biology/Physiology and 5+ years of mammalian cell culture experience. Expertise in cell line maintenance and testing, scale-up and cell culture media development essential. To be considered for this position, please respond to Dept. BD96-08-JW.

ASSISTANT SCIENTIST

Protein Purification

Assist in developing purification processes for recombinant proteins and viruses produced by bacteria and mammalian cell cultures. The results of your success will impact directly on new applications in human pharmaceuticals. Qualifications must include a BS in Biochemistry, Biology, Protein Chemistry or related field with up to 4 years relevant experience, or an MS with 0-2 years experience in purification and characterization of proteins. Familiarity with HPLC, FPLC and conventional chromatographic techniques desired. Team player with strong communication skills a must. To be considered for this position, please respond to Dept. BD96-10-JW.

We offer an excellent compensation package including a competitive salary and comprehensive benefits. For prompt, confidential consideration, we invite you to forward a resume indicating the Dept. Code for your position of interest and salary requirements to:

Human Resources-JW, Schering-Plough Research Institute, 2015 Galloping Hill Road, Kenilworth, NJ 07033-0539.

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
WANTED: Committed, ambitious scientist. Must be a team player with a vision for the future. M.D./Ph.D., Ph.D., M.S. or B.S. degree necessary.

Does this describe you?

If it does, then plan to attend the bioSCIENCE Career Fairs sponsored by SCIENCE. The bioSCIENCE Career Fairs offer the perfect opportunity for scientific professionals to meet in person with representatives from top biotechnology and pharmaceutical companies, universities, governmental agencies and institutions.

Next 1996 bioSCIENCE Career Fair

Palo Alto, CA on the Stanford Campus in Palo Alto, Oct. 4-5
Tresidder Memorial Union/Oak Lounge and Cypress rooms
Oct. 4: 11 am - 4 pm
Oct. 5: 11 am - 5 pm

To register, please submit your resume or CV via fax: (202) 289-6742, or via e-mail: bioscience@aaas.org. Please remember to bring multiple copies of your resume with you to the Career Fairs. A copy will be necessary to register. Admission to the event is free.

bioSCIENCE Career Fair Information On-Line:
http://www.sciencemag.org
(Choose SCIENCE Classified Advertising from the menu)
MASS SPECTROMETER ENGINEER

The Jet Propulsion Laboratory is a federally-funded research and development center operated for NASA by the California Institute of Technology located in Pasadena, California.

We are currently seeking an individual to support ongoing research and development in ion and electron beam instrumentation for interplanetary science measurements and earth-based applications. Duties will include leading the development of new concepts in electron and ion sources, electron/ion/x-ray detectors and associated optical systems.

Qualified candidates will have a PhD in Physics, EE or similar discipline and 0-2 years practical laboratory experience [or MS with 6 years or BS with 8 years] in electron and ion beam instrumentation, including electron/ion sources and detectors.

Ideal candidates will have experience in the development of mass spectrometers, electron microscopy and x-ray analysis methods. Experience with x-ray and gamma ray detectors is also desired.

Please submit resume and salary history to:

Staffing, Dept. Code: T-63
Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
M/S 249-104
Pasadena, California 91109

(54) 21202.

VACCINE FORMULATION SCIENTISTS

Merck Research Laboratories, a leader in pharmaceutical and biological research, is seeking highly motivated individuals to work on the characterization, stabilization, lyophilization and delivery of proteins and live viruses in support of human vaccine development.

The successful candidates will examine the physical, chemical and immunological integrity of vaccines during formulation and storage. The determination of pathways of inactivation at the molecular level will be emphasized.

Application of these findings to the design and scale-up of stable vaccine formulations for clinical use will be essential.

A PhD, with 0-5 years experience, or an MS with 5-10 years experience, in biochemistry, virology, bioengineering, pharmaceutical technology or related disciplines or the equivalent is required. A diverse scientific background combining these technical areas or previous experience with lyophilization technology is desired but not essential. As part of a multidisciplinary and highly interactive team, excellent communication skills are also required.

Excellent salary and benefit programs accompany this position at our modern research facilities located 25 miles northwest of Philadelphia.

Please send curriculum vitae with cover letter and the names of three references to: Personnel Manager, Ad #0-67, NHR Human Resources WP42-2, Merck Research Laboratories, P.O. Box 4, West Point, PA 19486. Only candidates selected for interviews will receive responses. EEO/AA/VH Employer.

Microbial Genome Analysis

The Center of Marine Biotechnology (COMB) of the University of Maryland Biotechnology Institute is seeking 3 postdoctoral Research Associates in the area of microbial genomic DNA analysis, focusing on bacteria and archaea from extreme environments. Two researchers in the laboratory of Dr. Frank Robb will work on genomic analysis, including hyperthermophilic Archaea and other prokaryotes from extreme environments, with emphasis on subtractive cloning and RDA analysis, and direct cloning from environmental DNA. The third position is a senior postdoctoral position which will supervise a sequencing gap-filling project in addition to personal research on genome analysis of organisms from extreme environments. In addition to the qualifications listed above and extensive experience in the areas mentioned, candidates for the senior position must possess the ability to supervise other team members. The group will work in collaboration with related NSF and DOE funded projects which are aimed at functional analysis of enzymes from extremophiles. Qualifications include a Ph.D. from an accredited university in a related field and hands-on experience in bioinformatics, as well as a broad molecular genetics background including automated DNA sequencing. Enthusiasm for research with organisms from extreme environments is important.

Salary for all 3 positions is commensurate with experience and qualifications. Please send curriculum vitae, statement of research interests (indicating position FR96-4a for the first 2 positions or FR96-4b for the senior position) and the names, titles, and addresses of 3 references by September 30, 1996, to: Ms. Tyra Burman, Position FR96-4a (or FR96-4b), Center of Marine Biotechnology, Suite 236, Columbus Center, 701 E. Pratt Street, Baltimore, MD 21202. An AA/EOE Employer.

NEUROSCIENCE—ANATOMY FACULTY POSITION

The Department of Anatomical Sciences has a tenure-track position available for appointment beginning on or before July 1, 1997. Applicants should hold a Ph.D., M.D. or equivalent degree. Appointment will be made at the Associate or Full Professor level, though advanced Assistant Professors will be considered. The candidate is expected to have a funded and established independent research program in neuroscience. Opportunity exists for joint affiliation with the Oklahoma Center for NeuroSciences (OCNS). Teaching responsibilities will be in the team-taught Microanatomy course for professional and graduate students. Candidates should have sufficient experience in teaching Microanatomy to assume an immediate and effective role in the course. Applicants should submit curriculum vitae, with an accompanying summary of past and proposed research interests, teaching experience, and names of three references.

Review of applicants begins October 1, 1996, and will continue until the position is filled.

Send all materials to: Raymond E. Papka, Ph.D., Professor and Chairman, Department of Anatomical Sciences, University of Oklahoma Health Sciences Center, Post Office Box 26901, Oklahoma City, Oklahoma 73190, (405) 271-2377; Fax: (405) 271-3548; e-mail: raymond-papka@ouhsc.edu.

Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL/RESEARCH ASSOCIATE

Institute for Gene Therapy and Molecular Medicine

Position available immediately for highly motivated individual to study the development and application of recombinant lentivirus-based vectors for somatic gene transfer in animal models of metabolic and endocrine disorders. Applicants must have a Ph.D. or M.D. degree and training in molecular virology.

Please send curriculum vitae and the names of three references to: Savio L. C. Woo, Ph.D., Institute of Gene Therapy and Molecular Medicine, The Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029-6574. EOE.
POSTDOCTORAL POSITIONS
UNIVERSITY OF MICHIGAN
DEPARTMENT OF RADIATION ONCOLOGY

POSTDOCTORAL POSITIONS in the Division of Radiation and Cancer Biology are available immediately to study potential applications of gene transfer therapy to radiation oncology. An additional position is to study growth regulation of tumor cells by IL-2. A third position is also available. The Division includes nine laboratories, with several areas under investigation relating to gene therapy including enzyme/prodrug radiation sensitizers, radiation biology, chemoresistance, radioimmunotherapy, radiation-induced and growth factor regulated signal transduction, DNA damage repair pathways, and targeting of P53 induction and apoptosis. The position candidates will have a strong background in cell biology, molecular biology, or molecular pharmacology. Interested applicants should send their curriculum vitae and names of three references to: Theodore S. Lawrence, M.D., Ph.D., Department of Radiation Oncology, University of Michigan, 3131 East Ann Street, Room 3001, Ann Arbor, MI 48109-0582. Equal Opportunity Employer.

POSTDOCTORAL POSITION
X-ray Crystallography and Drug Design
Rosenstiel Basic Medical Sciences Research Center
Brandeis University

Available immediately. The position forms part of a highly focused and energetic interdisciplinary team devoted to new drug discovery using a combination of rational design and combinatorial chemistry techniques. Applicants must have a strong background in protein biochemistry/enzymology and be willing to learn or increase skills in protein crystallography. The successful candidate will be responsible for implementation of structural analyses of ligand-protein interactions and managing relevant bioactivity assays. This position offers excellent experience for those with either industrial or academic career interests. The position will last at least two years on a renewable basis. Send curriculum vitae, statement of research interests, and two letters of recommendation to: Professors Greg Petsko and Dagmar Ringe, c/o Dr. Steve Gally, Rosenstiel Basic Medical Sciences Research Center, Brandeis University, 200 South Street, Waltham, MA 02254.

POSTDOCTORATE POSITION
The Division of Pulmonary Medicine, Allergy/Clinical Immunology at Children's Hospital Medical Center is seeking a Ph.D. and/or M.D. focused on molecular mechanisms of allergic inflammation. Research is focused on cosinophil biology, eosinophil trafficking healthy and disease states and the role of chemokines and their receptors in allergic and tumor responses. Approaches used include molecular and cellular biology, biochemical, mouse transgenic and homologous recombination, and immune models in animals. Applicants should have extensive experience and/or interest in these areas. Send curriculum vitae and cover letter to: Marc Rothenberg, M.D., Ph.D. Division of Pulmonary Medicine, Allergy/Clinical Immunology Children's Hospital Medical Center 3333 Burnet Avenue Cincinnati, OH 45229-3039 Children's Hospital Medical Center is an Affirmative Action/Equal Opportunity Institution. Women and minorities are encouraged to apply.

A POSTDOCTORAL POSITION is available to study a novel chloroplast protein import pathway. Euglena chloroplast protein precursors are polypeptides. They are transported as integral membrane proteins to the Golgi apparatus prior to chloroplast import and processing (see JBC, 270: 13804, 1995; The Plant Cell, 8: 43, 1996). Research is focused on reconstituting Golgi to chloroplast transport, chloroplast protein import, and processing presequence characterization. Experience in biochemistry, cell or molecular biology preferred. Send curriculum vitae, research experience and three letters of recommendation to: Steven B. Schwartz, Professor of Biological Sciences, E207 Beadle Center, University of Nebraska-Lincoln, Lincoln, NE 68588. FAX: 402-472-8722. University of Nebraska-Lincoln assures reasonable accommodation under the Americans with Disabilities Act; contact Mary Shelby at 402-472-1107 for assistance.

POSTDOCTORAL POSITIONS
Cellular and Molecular Immunology
Two postdoctoral positions are immediately available to study 1) the role of novel co-stimulatory molecules in delayed type (Th1 and Th2) immunity and 2) the function of new chemokines and their mechanisms of action in inhibiting HIV infection. A strong background in biophysical immunology and molecular biology is highly desirable. Please send your curriculum vitae, and names and telephone numbers of two references to Byoung S. Kwon, Ph.D., Department of Medicine, University School of Medicine, Department of Microbiology and Immunology, 635 Barnhill Drive—MS 255, Indianapolis, IN 46202. Telephone: 317-274-3960, Fax: 317-274-3961. Email: sunflower.bio.indiana.edu. Indiana University is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION
CELLULAR AND MOLECULAR NEUROPHYSIOLOGY IN DROSOPHILA

Applications are requested for a POSTDOCTORAL FELLOW position to study cellular neurobiology using a multidisciplinary approach in the model organism, Drosophila. Positions available immediately. Qualified candidates should have a strong interest in electrophysiological analysis of synaptic mechanisms as a complement to genetic and molecular characterization of Drosophila neural systems. While knowledge of electrophysiological experience is required, manual dexterity and some aptitude for working with computers and other electronic equipment are essential. Salary is guaranteed for 1.5 years with the possibility of renewal. Send curriculum vitae and reference information to: Dr. Richard Ordway, Department of Biology, The Pennsylvania State University, 208 Mueller Lab, University Park, PA 16802. Email: RWQ@psu.edu. Action/Equal Opportunity Employer; women and minorities encouraged to apply.

POSTDOCTORAL POSITIONS
POSTDOCTORAL POSITIONS are available immediately to investigate the recently discovered binding sites (cCKR and cCKr) for the complement subcomponent Clq on human blood platelets and umbilical vein endothelial cells (J. Immunol., 152: 5890-5901, 1994; Sci. Histio., 31: 320-328, 1994). Ph.D. and/or M.D. cell biologists, molecular biologists, and immunologists are needed to elucidate the cellular and biological properties of both binding sites, their expression, and the possible role of their physiologic potential in thrombosis and inflammation. Submit curriculum vitae and three references by mail or FAX to: Dr. Robert M. Fenn, Professor of Pathology, Cornell University Medical Center, 525 East 68th Street, New York, NY 10021. FAX: 212-746-8192. Equal Employment Opportunity/Affirmative Action/Minorities/Females.

POSTDOCTORAL POSITION
immediate availability to the NBRPG fund to investigate the role of proteins mediating presynaptic mechanisms of neurotransmitter release. Research will involve an integrated approach including generation of transgenic and/or knockout mice with a multi-level analysis of gene expression, neurotransmitter release and impact on behavior, particularly hyperkinesis. Applicants must have a Ph.D. with a strong background in molecular genetics and neurobiology. For more information or to apply send curriculum vitae and names of three references to: Michael C. Wilson, Department of Biochemistry, University of New Mexico Health Sciences Center, Basic Medical Sciences Building, Albuquerque, NM 87111-5221. FAX: 505-277-5389. The University of New Mexico is an Affirmative Action/Equal Opportunity Employer and Educator.

Applications are invited for an immediate POSTDOCTORAL FELLOWSHIP to study the structure and function of the molecular biology database system. This position is available immediately to a Ph.D. with a strong background in biochemistry, biophysics, or biological chemistry. Please send a curriculum vitae and the names and phone numbers of three references to Dr. John Gallivan or to Dr. Theodore J. Ryan, Wadsworth Center, New York State Department of Health, P.O. Box 509, Albany, NY 12201-0509. FAX: 518-473-2900. Email: jg01@health.state.ny.us.

SYMPOSIUM

International Symposium at Harvard University
HEALTH CARE NETWORK ENVIRONMENT
October 7 and 8, 1996 • Boston, MA
DEFOING ERGONOMIC EXPOSURES
Tuesday, October 8:
OCCUPATIONAL AND ENVIRONMENTAL MOLECULAR EPIDEMIOLOGY
For information: J. Sullivan, HSPH, 665 Huntington Avenue, Boston, MA 02115. FAX: 617-277-2382 or Email: jsulliva@sph.harvard.edu.

ANNOUNCEMENTS

CALL FOR NOMINATIONS BUSSE RESEARCH AWARDS
Promoting international research in gerontology, two Busse Research Awards will be given at the XVII International Congress of Gerontology, Adelaide, Australia, August 1997. Two gerontologists (JUNIOR or MID-CAREER) who have made significant contributions to aging research will be selected. One award will recognize a scientist from the social/behavioral sciences, the other, from the biomedical sciences. Awards will be $20,000 each, with up to $2,000 provided for travel/living expenses. Award recipients must present a lecture based on their research at the Congress. Deadline for receipt of applications: October 30, 1996. For information, contact the following forms exists to:
Harvey Jay Cohen, M.D.,
Jury Chair,
Busse Research Awards,
Center for Aging,
Box 3005,
Duke University Medical Center,
Durham, NC 27710, USA.
Telephone: 919-660-7802
FAX: 919-684-8569
Email: ray00004@mc.duke.edu.

RESEARCH Associates IN SPACE BIOLOGY
The advances in the space shuttle program and development of the space station have followed the development of space biology science that offers exceptional opportunities for research. NASA is offering RESEARCH ASSOCIATE AWARDS at the postdoctoral level for scientists to conduct research in a laboratory or nongovernmental research institute of your choice that can provide the necessary facilities and research environment. Proposals should be in the gravitational and space biology discipline. Annual awards are $20,000 for the first year and $22,000 for the second year. Funding will begin July 1 to October 1, 1997. U.S. citizens and permanent resident aliens with Ph.D., M.D., D.V.M., D.M.D. or equivalent degrees are eligible to apply. Proposals are due February 17, 1997. For information and application booklet contact: Dr. Gerald Sonnenfeld, Department of General Surgery Research, Carolinas Medical Center, P.O. Box 32861, Charlotte, NC 28232. Telephone: 704-355-2639. FAX: 704-355-7203.
RESEARCH BIOLOGIST

Cell Biology

We currently have a position available in Cell Biology for a BS/MS-level Research professional with experience in tissue culture and cell biology/molecular biology. The successful candidate will be involved in developing inhibitors of key regulators of cancer, human papillomavirus, and the cell cycle. Technical skills in tissue culture, protein analysis, apoptosis, molecular biology, and flow cytometry are desired. At least 2 years of research experience is required.

At Gilead, we are committed to developing important treatments for a wide range of viral diseases, including AIDS. As you will discover, we are committed to scientific excellence and opportunity. To learn more, please send or fax your C.V./resume to: Human Resources, Gilead Sciences, Inc., 353 Lakeside Drive, Foster City, CA 94404, fax (415) 573-4800. We are proud to be an equal opportunity employer.

GILEAD SCIENCES

Nutritionist

Department of Agriculture (USDA)

Agricultural Research Service (ARS)

Position/Location: The National Program Staff, Agriproducts and Human Nutrition Sciences Branch at the Agricultural Research Service, USDA, Beltsville, Maryland, has an opening for a National Program Leader for Nutrition.

Responsibilities: To lead and coordinate agricultural research programs relating to human nutrition and the food supply. To provide leadership and coordination for programs that creatively expand the knowledge base needed to make nutrient and dietary recommendations to the public and resolve issues associated with dietary guidance, food assistance and relation of nutrition to health, food supply and processing, food composition and biotechnology. To participate in implementation and operations planning and review teams to assess, validate, and initiate programs or program shifts needed to reflect national priorities and policies. To participate in Agency budget development and serve as a technical expert for advice on technical policy and issues.

Qualifications/Salary: Bachelor's or higher degree in dietetics, food, nutrition, or closely related science. A Ph.D. is desirable. Candidates must have experience with human nutrition research related to nutrient functions and requirements as well as demonstrated ability to administratively lead and coordinate research programs. For specific qualifications, see vacancy announcement. The appointment is a permanent full-time position and requires U.S. citizenship. Salary commensurate with experience ($73,486—$95,531).

To Apply: For an application package with complete qualifications and instructions, contact the Human Resources Division (301) 344-4638 or (301) 344-2288, and request vacancy announcement number ARS-D-H-6-024. For information on the position, contact Ms. Wilda Martinez at (301) 504-6275, fax: (301) 504-6699.

Effective Date: Applications must be marked ARS-D-H-6-024-B610 and postmarked by October 7, 1996.

USDA/ARS is an Equal Opportunity Employer

PROFESSOR AND DIRECTOR

EYE RESEARCH INSTITUTE

OF OAKLAND UNIVERSITY

Applications and nominations are invited for the position of Director of the Eye Research Institute of Oakland University. The candidate must have a Ph.D. and/or M.D. degree, a distinguished record of scholarly activity as evidenced by a strong publication record, and a vigorous, nationally recognized vision research program. The successful candidate will have academic credentials commensurate with the rank of Professor and a record exhibiting strong administrative skills as well as the ability to attract research support. The new Director will be expected to provide leadership to a group of well-established, productive vision researchers while conducting his or her own active eye research program and interacting with clinical faculty in the investigation of disease-oriented visual disorders. Individuals with an interest in retinal disease are particularly encouraged to apply. Generous space and start-up funds are available, and the successful candidate will also be able to participate in the recruitment of a new junior faculty member.

The Eye Research Institute is an independent academic unit of Oakland University, a state-supported institution situated on a 1400-acre campus, 25 miles north of Detroit, with an enrollment of 13,600 students in baccalaureate and graduate programs. The Institute is a major center for ophthalmic research and conducts basic studies on eye diseases that cause blindness. Eight faculty members and a support staff of 25 carry out research in the biochemistry, physiology, and molecular biology of the cornea, lens, retina, and intracellular fluids. In addition, a formal fellowship exists between the Institute and the Ophthalmology Department of a major area hospital allowing for collaboration on clinical projects and a joint ophthalmology residency and fellowship program. Oakland University holds a Core Center Grant for Vision Research awarded by the National Eye Institute.

Applicants should send a curriculum vitae, 3 to 5 selected reprints, and the names of 3 references by December 1, 1996, to: Frank Giblin, Ph.D., Chair, Search Committee, Eye Research Institute, Oakland University, Rochester, MI 48309-4401.

Oakland University is an Affirmative Action/Equal Opportunity Employer and encourages applications from women and minorities.
Sigma Gives You One Better - Precast Gels in Convenient Single Packs.

Are you tired of half the precast gels in a package expiring before you need them? Are you annoyed by minimum order requirements? Then you'll welcome Sigma's smart answer to short shelf life: our convenient new single packs.

Sigma's precast mini-polyacrylamide gels offer many advantages. They're available in a variety of concentrations and gradients, in 8 x 10 cm or 10 x 10 cm cassette sizes. They're reliable and reproducible. They're faster, easier and safer than hand-casting.

And they're a bargain, because you can buy just one at a time.

Now when you really only need one gel, you can get exactly what you need. Never more, and certainly never less. That's just what you expect from Sigma, your single source for precast gels.


Sigma Chemical Company
P.O. Box 14508
St. Louis, MO 63178 USA
**Human BAC Resources**

**BAC DNA Pools**
Now the row and column pools for the Human BAC library are included with the DNA pools. These row and column pools add twenty-four 96-well plates to the existing set of DNA pool plates. The screening of the superpools will total 48 reactions, and the screening of the plate, row and column pools will total another 48 reactions per positive superpool. After only 96 total reactions, the researcher will have a complete clone address! Sufficient DNA is provided for 50 screenings.

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<td>96011</td>
<td>Human BAC DNA pools</td>
<td>$1,950.00</td>
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**BAC High Density Membranes**
High density membranes allow for efficient hybridization screening of entire libraries. After spotting and growing, the high density membranes are processed by lysing the colonies and UV bonding the released DNA. Each 22cm x 22cm membrane is double spotted allowing unambiguous clone identification of over 27,000 clones double spotted on a single membrane.

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<td>96055</td>
<td>Set of 5 HD Human BAC Colony DNA Membranes</td>
<td>$1,750.00</td>
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**BAC Custom Screening**
Research Genetics' custom hybridization screening service locates genomic clones from our human BAC library. To date, over 95% of all custom hybridization screenings have been successful:
- Human BAC Library usually yields 2-5 clones
- DNA in various forms may be used as probes: cDNAs, PCR fragments, ESTs, genomic fragments, YACs, BACs, cosmids, alu-PCR fragments, and long oligonucleotides (>40 mers)
- Average turnaround time is ten days
- Charge for the basic service for the BAC libraries is $890 and includes one clone
- Additional clones may be purchased for $24 each
- Service is guaranteed - if no clones are located, there is no charge!
- PCR-based screening also available at the same price

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