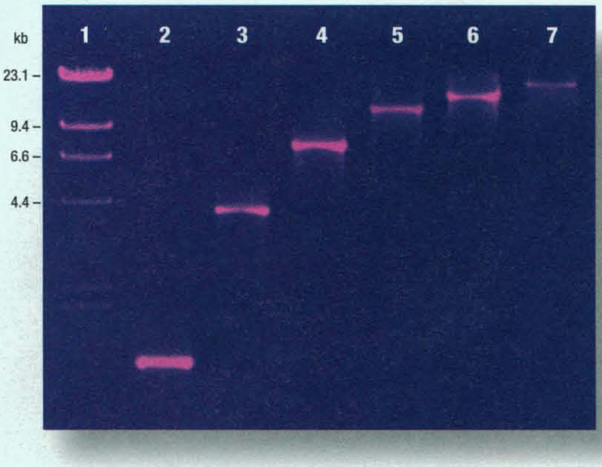
GIBCO BRL Products for Long PCR

When you have a long way to go,



choose the best way to get there.

Human Genomic DNA K562 DNA (100 ng) was amplified with ELONGASE Reagent for 35 cycles in a 50 µl volume. Lane 1 is lambda DNA/Hind III Fragments. Lanes 2-4 are amplifications of 1.3 kb, 4.1 kb and 7.5 kb β-globin targets, respectively. Lane 5 is an amplification of a 12.4 kb serum albumin target. Lanes 6 and 7 are amplifications of 15.1 kb and 20 kb Factor IX targets, respectively. Sample loads range from 4-10 µl.

GIBCO BRL ELONGASE™ Reagents. Your best choice for success with long PCR.

ELONGASE Reagents* contain an optimized mixture of recombinant, thermostable polymerases, including a proofreading ($3' \rightarrow 5'$ exonuclease) activity, resulting in efficient amplification of long templates and exceptionally high yields.

RT-PCR cDNA was synthesized from HeLa RNA (500 µg) with the SUPERSCRIPT™ Preamplification System using oligo dT. A portion of the reaction was amplified with ELONGASE Reagent. Lane 1 is the 1 Kb DNA Ladder. Lanes 2-4, respectively, are amplifications of 5.3 kb tuberous sclerosis II, 6.8 kb DNA polymerase ε and 8.9 kb adenomatous polyposis coli full length cDNAs.

Efficient Amplification of Long Templates

- Amplification of λ DNA up to 30 kb and single-copy genomic DNA up to 20 kb.
- Amplification of long cDNA templates in RT-PCR applications.

Exceptionally High Yield

- 10^6 fold amplification of DNA templates < 10 kb in size.

One-step Optimization

- Simple mixing of buffers for accurate Mg^{2+} titration is the only step required.
- Proven effective for simple and complex targets – no need to optimize enzyme concentration or change buffers.

Choose the best for success!

	Cat. No.	Size
ELONGASE Enzyme Mix	10480-010	100 rxn
	10480-028	500 rxn
ELONGASE Amplification System Contains ELONGASE Enzyme Mix, 5X PCR Buffer, dNTP Mix, distilled water, silicone oil and control human genomic DNA with primer sets for 7.5 kb and 20 kb targets	10481-018	100 rxn

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* Purchase of this product is accompanied by a limited license to use it in the Polymerase Chain Reaction (PCR) process for research and development in conjunction with a thermal cycler whose use in the automated performance of the PCR process is covered by the up-front license fee, either by payment to Perkin-Elmer or as purchased, i.e., an authorized thermal cycler.

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PRODUCTS & MATERIALS

Agarose for Gel Shift Assays

MetaPhor XR agarose forms flexible gels for high resolution of DNA-protein binding complexes. This agarose is useful in gel shift assays and is compatible with most horizontal and vertical electrophoretic and blotting equipment. MetaPhor XR combines the convenience and ease of agarose with the resolving power of acrylamide. **FMC BioProducts. Circle 130.**

■

Apoptosis Study Kits

Three new kits for the study of apoptosis, or programmed cell death, are faster and more sensitive than the market leader's kits, claims the manufacturer. The kits are based on the labeling of DNA strand breaks in individual cells with fluorescein-dUTP. Strand break is an early and selective marker of this type of cell death. One kit is for direct analysis by fluorescence microscopy or flow cytometry. The other two kits are for light microscopy and offer either alkaline phosphatase or peroxidase secondary detection systems. **Boehringer Mannheim. Circle 131.**

■

Maintenance-Free Gel Drying

The digital Slab Gel Dryer (SGD2000) and oil-free Gel Pump (GP110) combine to form a complete maintenance-free gel drying system. The SGD2000 features a large, 40 cm by 50 cm drying surface for a large sequencing gel or many smaller gels. A readout indicates elapsed time and temperature (30° to 80°C) during run and cool-down. The patented Gel Pump is a compact, quiet vacuum source featuring a corrosion-resistant vapor path for long life, and a unique trapping and recovery system that eliminates the need for a cold trap. **Savant Instruments. Circle 132.**

■

Agarose Enhancer

Infinity Agarose Enhancer can be added to agarose to improve the resolution of DNA molecules and enhance gel clarity and strength. It comes as a powder that can be mixed with agarose at various concentrations to achieve optimum gel characteristics. The enhancer does not change the gelling and remelting characteristics of the agarose with which it is mixed. **Oncor. Circle 133.**

■

Antibodies

A new line of labeled secondary antibodies for immunohistochemistry, enzyme-linked immunosorbent assay, and protein immunoblotting applications can detect picogram amounts of immunoglobulin G. **Amresco. Circle 134.**

Two polyclonal antibodies specific for the rat parathyroid hormone receptor can be used in immunoblotting and immunohistochemistry. **Berkeley Antibody. Circle 135.**

A line of anti-fas antibodies can be used for study of apoptosis. **Immunotech. Circle 136.**

■

Labeled Oligonucleotide Synthesis

New Biotin CED Phosphoramidite and Fluorescein CED Phosphoramidite allow easy and efficient synthesis of oligonucleotides labeled with biotin and fluorescein. Unlike other commercially available reagents, these newly developed phosphoramidites can be used like conventional DNA phosphoramidite monomers. No modification of the standard synthesis and deprotection protocols is required. The new reagents provide a coupling efficiency of >98% for maximal yield of the labeled oligonucleotide. **BioGenex. Circle 137.**

■

Sample Preparation for DNA Sequencing

The AutoLoad Solid Phase Sequencing Kit improves the handling, processing, and sequencing of biotinylated polymerase chain reaction (PCR) products. The kit allows di-

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card and placing it in a mailbox. Postage is free.

rect elution of PCR products into the wells of sequencing gels from solid-phase streptavidin combs. Samples are processed in parallel, making 10 sequencing reactions as easy to handle as one. The kit reduces pipetting steps by 70% compared with other solid-phase methods. **Pharmacia Biotech. Circle 138.**

■

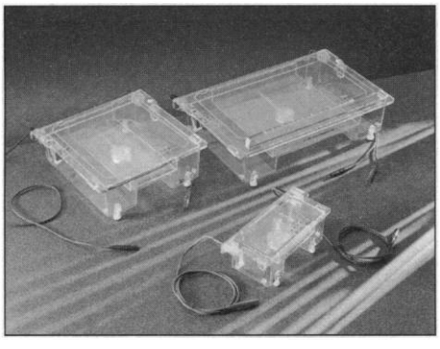
Stereomicroscope

The Leica MZ12 is the only stereoscope with 12.5:1 zoom, according to the manufacturer. The unit offers new application possibilities. The continuous observation of three-dimensional objects from lowest to highest magnification can reveal previously hidden information. For the first time, the magnification of an object can be increased without interruption from 8× to 100× in a single zooming movement. A complete range of main objectives allows a maximum magnification of 640×. **Leica. Circle 139.**

■

Leak-Free Complete Gel Sytems

Three complete gel systems are designed to make horizontal electrophoresis as simple and efficient as possible. Each ultraviolet



(UV) transparent gel tray incorporates a permanent UV-fluorescent rule facilitating easy and accurate measurements on photographs. The trays and buffer chambers are constructed of one-piece moldings to eliminate leaks. Gel casting has been simplified through the use of molded rubber end blocks that obviate the need for tape. A built-in leveling device and adjustable feet ensure gels with a uniform thickness. The Mini-Gel includes a tray of 6.5 cm by 9.0 cm, the Midi-Gel a tray of 20 cm by 10 cm, and the Maxi-Gel has two trays: 20 cm by 10 cm and 20 cm by 20 cm. **Hybaid. Circle 140.**

■

Intelligent Electronic Nose

The Fox 2000 is the original intelligent electronic nose. The instrument mimics the mammalian olfactory system through an array of 6, 12, or 18 interchangeable semiconducting oxide sensors combined with specially developed pattern recognition software. There is a choice of 42 different detectors. Without using a separation technique, the Fox 2000 can rapidly identify and quantify vapors. The sensitivity for certain compounds is in the low parts per billion range. It can analyze any liquid, solid, or gaseous product that has a headspace vapor. **Alpha M.O.S. Circle 141.**

■

Immunohistochemistry Detection System

The Dako Envision System, HRP, is a two-step staining technique that allows the user to choose a short (10-min incubation) or long (30-min incubation) protocol depending on the sensitivity required. The system is based on a horseradish peroxidase–labeled polymer conjugated with secondary antibodies. Primary antibodies produced in either rabbit or mouse react equally well with the labeled polymer. More than 80 prediluted monoclonal and polyclonal antibodies are available for use with the system. **Dako. Circle 142.**

■

Mice Cardiac Output

The Cardiomax Cardiac Output Computer equipped with Columbus Instruments F #1 thermodilution microprobe can be used to measure cardiac output in mice. Measurements are performed by injection of 20 to 40 μl of saline into the vena cava through the right external jugular vein. The thermodilution microprobe was inserted into the aortic arch through the left carotid artery. Measurements can be performed at 2- to 3-min intervals with consistent results. The same Cardiomax computer can be used for measuring cardiac output of rats and larger animals. **Columbus Instruments. Circle 143.**

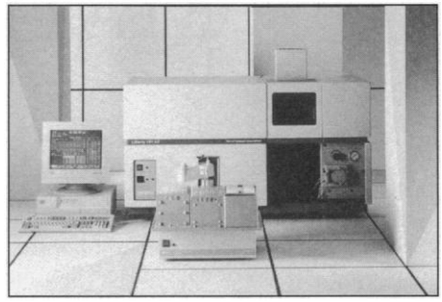
■

Aluminum-Backed Sequencing System

Owl's aluminum-backed sequencing system features a floating aluminum plate to provide even heat dissipation and reduce the likelihood of plates breaking during sequencing runs. The anodized aluminum heat sink distributes the heat generated during electrophoresis across the surface of the gel to provide effective heat dissipation. As the system heats up and expands, the floating aluminum plate moves with the gel assembly, thereby reducing stress and extending the lifetime of the glass plates. Each system incorporates full-length side clamps to eliminate leakage and uneven glass tension. **Owl Scientific. Circle 144.**

ICP Emission Spectrometer

The Liberty 150 AX Turbo inductively coupled plasma (ICP) emission spectrometer with axially viewed plasma delivers up to 10-fold improvement in detection limits com-



pared with conventional side (radially)-viewed ICPs. The unit's speed challenges the need for costly simultaneous ICP systems. Axial viewing increases the amount of light entering the spectrometer by increasing the source path length. A dramatic improvement in detection limits results when an axial-viewed plasma is coupled with optimized optics, sample introduction, and plasma system. The Liberty has a high resolution spectrometer that provides resolution of up to 0.006 nm to minimize spectral interferences. **Varian Associates. Circle 145.**

■

Literature

Brinkmann Laboratory Products 1995 is a 56-page brochure on a wide variety of laboratory and industrial products for research, quality control, environmental monitoring, and more. Products include liquid handling instruments, homogenizers, overhead mixers, sample preparation equipment, baths, chillers, rotary evaporators, and titrators. **Brinkmann Instruments. Circle 146.**

ChromCart: The Other Cartridge System for HPLC describes columns packed with Nucleosil that are available with bonded phases of C18, C8, cyano, phenyl, and amino as well as bare silica. **DyChrom. Circle 147.**

Balances and Instruments for Quality Results is a 38-page introduction to a diverse product line. **Mettler Toledo. Circle 148.**

QIAGEN Product Guide 1995 includes products for plasmid DNA isolation, phage DNA isolation, DNA clean-up and gel extraction, genomic DNA isolation, RNA isolation, and protein purification and expression. **Qiagen. Circle 149.**

1995–96 Spectrum Chemical and Safety Products Catalog features products for molecular and life science laboratories and cleanroom environments. **Spectrum Chemical Manufacturing. Circle 150.**

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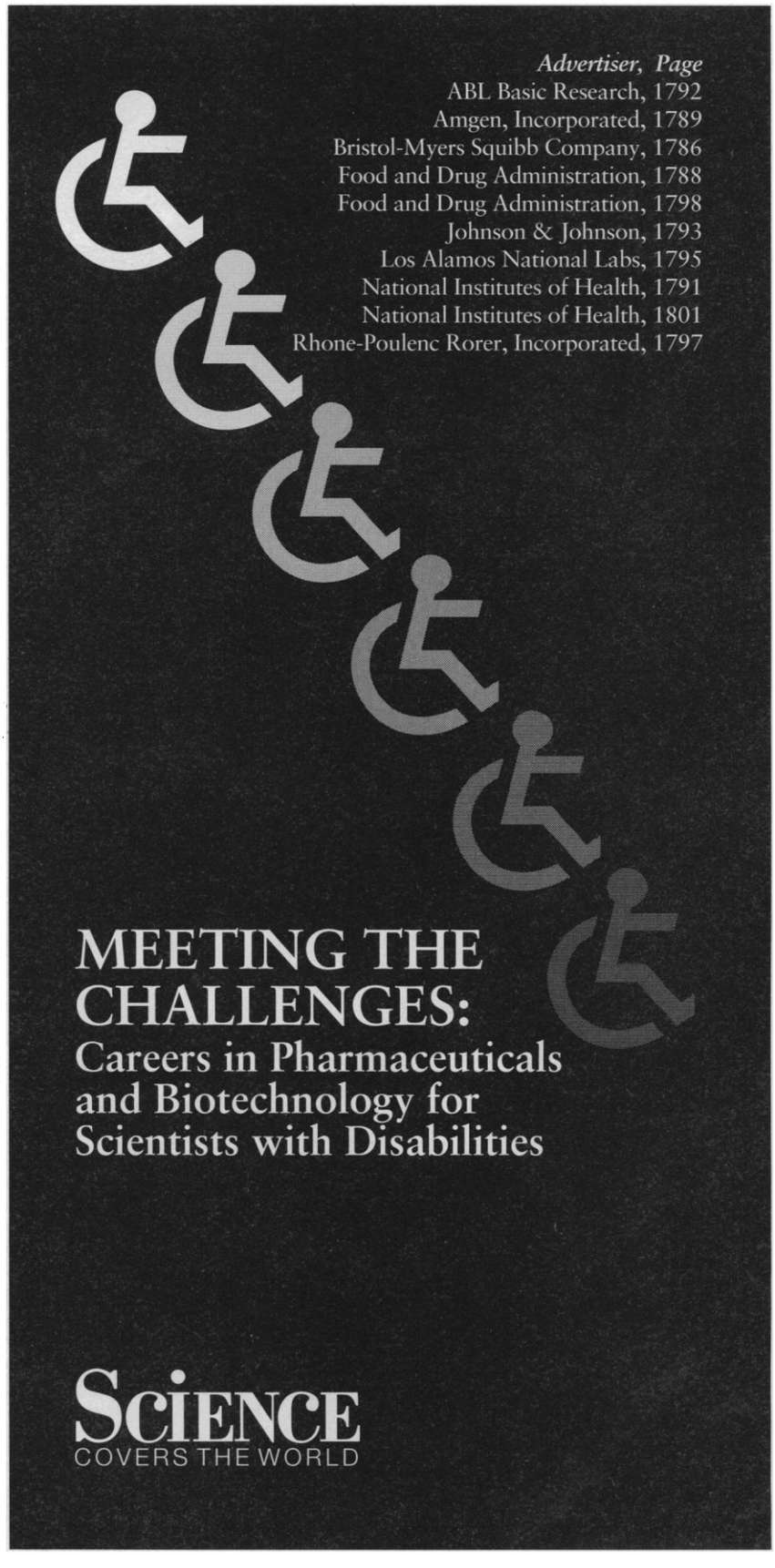

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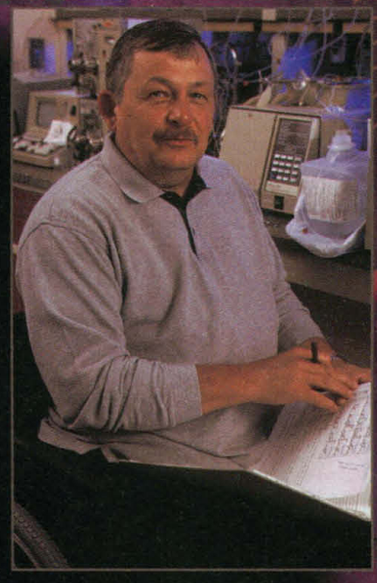
"I have cerebral palsy and never think of myself as disabled unless someone holds the door for me while walking with me to a meeting or something. At Bristol-Myers Squibb, we have the opportunity to move around the Company to broaden our skills. I worked in R&D for five years prior to moving to the business side four years ago. A scientific background helps to integrate the needs of the scientific community with the rest of the business."

Stephen Mosley, Ph.D., Director,
Business Process Improvement, Operations Planning
Princeton, NJ

"Bristol-Myers Squibb lives up to their commitments to their employees. In my case, the Company adapted my work area enabling me to continue my work as a laboratory scientist."

Robert Mayol, Ph.D., Research Fellow,
Metabolism and Pharmacokinetics
Wallingford, CT



Heather Hogatt, Associate Research Scientist,
Immunotherapeutics, Seattle, WA

"For me, working in the scientific field and having a disability are very similar. You have to continue working through the difficulties while keeping your sense of humor. Then your goals are achieved and personal satisfaction follows."

"Bristol-Myers Squibb has made accommodations like getting the electric card to enable me to go between buildings, adjusting my work schedule so I can go for dialysis, and by giving me my own fax machine and office equipment to decrease the amount of walking I need to do. I appreciate the support from my Company and coworkers and how they've helped me in so many ways."

Richard Janssen, Ph.D., Sr. Research
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Meeting the Challenges:

Careers in Pharmaceuticals and Biotechnology for Scientists with Disabilities

In science, our mental and physical capabilities meet and exceed the imaginable. *Capabilities* is the key word: Science is the ultimate in what we can do. Think of the clichéd image of the scientist—keen vision, delicate touch, steely control of all senses and powers.

Now take away those senses—hearing, say, or vision. Take away control—of the hands or arms. Take away unassisted mobility. Or add a crippling disease, a progressive disorder that faces the high-achieving scientist with bigger obstacles each day. Imagine these as having existed since birth. Now imagine them in mid-career, coming on suddenly, coming on gradually.

And what remains, with thousands of individuals, is a scientist performing with utmost excellence. Scientists of great physical diversity are peak performers in the scientific arena. It's not easy—indeed, science isn't easy for anybody. And much work remains to be done, not so much in the physical workplace as in the attitudes of the community. Even so, as the stories below make clear, science is a career option for anyone with the talent and the willingness to work.

Three Ways of Looking at Disability: Bristol-Myers Squibb

Few concrete data are available concerning the exact number of disabled biologists, chemists, and engineers working in industrial biopharmaceuticals in the United States. Neither the companies nor the scientists themselves are especially eager to single out those with disabilities. (As one human resources officer said to us, "Who cares, as long as they can do it?") Everyone would rather get on with the business of doing good science.

One must therefore rely on individuals with stories to tell. At Bristol-Myers Squibb (BMS), we found a number of such individuals. Despite their diversity, their stories share two elements: The scientists' willingness to work their way around the obstacles, and the company's willingness to help.

Heather Hoggatt is an associate research scientist working in the department of immunodeficiency and immunosuppression at the BMS Pharmaceutical Research Institute (PRI) site in Seattle, Washington. She does recombinant DNA work, splicing genes into vectors that are then incorporated into the genome of transgenic mice.

After earning her microbiology BS in 1971 from the University of Washington, Hoggatt took a range of clinical jobs, including research at the university. Having taken time off to have a son, she chose to return to science right away. "I really wanted to get back into the workforce again," she says, "back to the bench, and learn more advanced techniques. I liked science and found that I missed it." She has worked at PRI for the past five years.

Postpolio syndrome is also part of her story. Hoggatt had polio at the age of two. For a while she could not walk at all, and after several operations she remained in a long steady-state period. Symptoms of the disease are now manifesting themselves as a gradually increasing weakness. She can walk, at most, half a block, "from one end of our building to the other," as she puts it. She has had to begin using a cane, and she requires help in covering any extra distances.

Aside from a parking space closer to the lab, no special accommodations have been necessary yet. The real story is the simple willingness of her superior and co-workers to continue work as usual. "I don't think I have ever really sat down and discussed it with my boss," Hoggatt says, "and we haven't needed to. He knows the situation, and he has been very nice and supportive. I think that goes for everyone in the group. It helps that there is a lot of kindness around here."

Robert Mayol is a research fellow at PRI in Wallingford, Connecticut. After nearly two decades as a biochemist, Mayol was paralyzed from the chest down in a bicycle accident six years ago. "I was at first very apprehensive about my future as a scientist," he says. "Lying in my hospital bed, I could imagine that at the very most I'd be given an administrative job. But the company was there before I even got out of the rehab ward with the engineers redesigning my lab. By the time I started coming back part time, everything had been taken care of. I didn't miss a beat."

Access to buildings was no problem. But the doors to Mayol's office were too narrow for a wheelchair, so a pocket door was cut into the wall. In the lab itself, the company designed lower benches with kneeholes. "They also gave me lower cabinets underneath the hood, and they generally arranged things—everything from tools to fire extinguishers to eyewash sprays—so I could reach them," Mayol says.

He continues his work in drug metabolism, along with an assistant and another PhD scientist. Is he working at peak efficiency now? "Well, I do need some help. There's no way I can lift a reagent bottle or replace a bottle or an instrument on a shelf. But as far as getting the actual experimentation done, I don't think I have slipped at all.

"If I had been a bricklayer or in some other line of work," he says, "I would have had to learn an entire new trade. I wouldn't be this happy. Because I'm a scientist—that's all there is to it. When I was lying there, when they first told me about my paraplegia, I knew in my heart I could still do science. And now I get to do that. I plan to do it to the end of my work life."

Richard Janssen, a senior research investigator in analytical R&D systems at PRI in New Brunswick, New Jersey, says, "Humor and the foresight to have been born a stubborn German have been my two biggest assets." A wry sense of humor colors his descriptions of his own disability—a genetically inherited disorder known as autosomal polycystic kidney disease (PKD). "One physician described the problems being caused by my massive kidneys as equivalent to those a woman would face if she were

FDA SCIENTISTS

Typical positions at the Food and Drug Administration's **Center for Drug Evaluation and Research** include:

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Positions may be filled by scientific fellows (permanent residents within 4 years of obtaining citizenship) or permanent civil service appointments which require U.S. citizenship.

SALARY: Civil Service salary range for GS-11 through GS-13 is $36,174 to $67,021. Salary, benefits, and level of responsibility are commensurate with education and experience.

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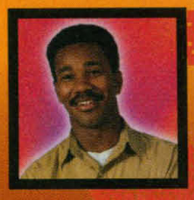

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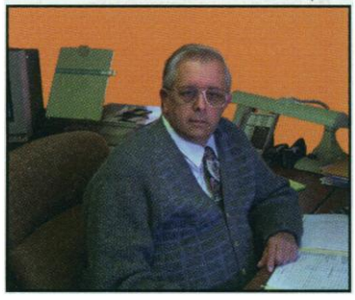
11 months pregnant," he says. Hundreds of fluid-filled cysts have formed in his kidneys, enlarging them until they now weigh more than 30 pounds. Cysts have also developed in the brain and liver. Diabetic neuropathy, postpolio syndrome, and PKD side effects limit his ability to walk, and he must use a cane.

Janssen relies on his 25 years of experience in performing quality assurance reviews for areas such as drug synthesis, pharmaceutics, and clinical supply operations at various company sites. Janssen says, "I enjoy contributing and plan to keep working as long as I can." He works on-site on Mondays, Wednesdays, and Fridays, and he goes to dialysis on Tuesdays, Thursdays, and Saturdays. On good days, he can write and do reviews while on dialysis and continue work at home. During and after difficult dialysis sessions, however, it is not possible to work.

John Timpane



Richard Janssen of Bristol-Myers Squibb

"When my condition increased in severity, I never even thought of hiding it," he says, adding that the company is offering accommodations because it is "the right thing to do," not because of the passage of the Americans with Disabilities Act (ADA). A co-worker drives him for most of his 90-mile daily commute, and the company has provided an office (complete with FAX machine and a refrigerator for medications) on the first floor adjacent to an outside door. For getting around the expansive New Brunswick site of PRI, Janssen has use of a golf cart. To facilitate his working at home, BMS has supplied him with a laptop computer.

"You become very pragmatic about your situation," Janssen says. "I didn't get the best deal when it came to health, but this is what I have to work with. The company suggested going on long-term medical disability last year when I was approaching the need for dialysis, but I arranged instead to work on-site three days each week and work at home on the other two days." Then, showing equal parts humor and stubbornness, he says, "If I can't take it with me, I'm not going."

Obstacles and Opportunities: Thomas Doyle of the FDA

Thomas Doyle is a research chemist in the Center for Drug Evaluation and Research at the Food and Drug Administration. He is postlingually deaf, meaning that he was born hearing and became profoundly deaf (at age eight) only after he had learned language. Doyle, who speaks for himself but hears nothing at all, insists on calling himself lucky. "Honestly, I was. I read my way through college and grad school without interpreters, without really understanding my professors."

Doyle earned a BS *cum laude* in chemistry at Fordham University before completing his PhD at George Washington University. He earned a perfect GPA in his graduate coursework—"so if we're talking the classwork part, that was relatively easy. If it was there in the books, I could do it." But acceptance came hard, even in the midst of achievement: He was bypassed for his undergraduate honors program despite graduating third in his class, and he missed other opportunities because oral interviews were difficult.

At the FDA, Doyle continued to achieve. Publications, book chapters, and patents followed. "Chemistry per se requires few accommodations for the deaf scientist," he says. "Barriers to labs or scientific work are really quite minimal, and technical advances have eased what barriers exist." Two of these advances are the Telecommunications Device for the Deaf (TDD) and the national relay system set in place by the ADA. And electronic mail is another. "E-mail has made big changes in my ability to interact with other scientists," Doyle says.

There were, to be sure, some difficulties. "Communication at large meetings was a problem, as was phone contact in general," he says. "The real problem was attitudinal. I honestly do not feel that most individuals in today's society think they are discriminating, and it is of course not overt or intended, but there is a basic gut feeling that the disabled are unable." Nevertheless, Doyle eventually became the branch chief, supervising, among others, two other PhDs and two international PhDs. "We were really getting some world recognition in my area of chemistry."

By any measure, Doyle has been extremely productive. His research group was the first to achieve resolution of many chiral drugs. That group has resolved more than 50 stereochemical drugs via HPLC, and they have gained recognition as leaders in the use of chiral stationary phases in pharmaceutical analysis. That work continues, as do the patents and publications. "I feel my group has made a major contribution to the field of drug analysis. There are many things I'm proud of, and I'm glad I chose chemistry as a career."

Doyle serves on the American Chemical Society (ACS) Board Committee on Chemists with Disabilities and speaks with scientists in many areas. "Almost everyone agrees that the technical, physical problems have been solved. What's next is more awareness on all sides. We needed technological aids. They're here. We needed legislative action. That's here. But people have to know about it—and be willing and able to find it. As more disabled scientists use the technology to get a foot in, we'll have to address the attitude question. It's hard to turn a deaf ear to that."

Tapping the Potential: Science Internships at SmithKline Beecham

"When you see the percentage of disabled people who aren't working, it's enough to make you sit down and cry at all the untapped potential." Those are the words of Bessie Jordan, manager for corporate equal opportunity affairs, SmithKline Beecham (SKB). Jordan is one of the guiding forces behind her company's Internship Program for Students with Disabilities.

In 1968, SKB launched the Business Experience Education Program (BEEP) to introduce

FIGHTING THE ELEMENTS: Charles Stenberg of Argonne Labs

In many cases, perhaps most, the scientist with a disability just gets on with the work. Such is the case of Charles Stenberg, a physicist in the reactor analysis department of Argonne National Laboratories near Batavia, Illinois. Stenberg was relegated to a wheelchair by paraplegia related to polio, and most of his battles have been with the elements. "Here at the Labs," he says, "there is no underground parking, and when it gets snowy and icy, which it often does in the winter months, it can get tricky." Accordingly, Stenberg now has a parking space close to his office building, and management sees to salting and sanding, as well as snow and ice removal.

Other changes, such as recently installed electronic doors, just seemed to happen. "I didn't ask," Stenberg says. "They just did them."

Walter McFall, recruitment coordinator for Argonne, takes a low-key approach. "Accommodations are handled on an ad hoc basis here," he says. "If a scientist needs something to keep up to speed, we'll do what's necessary. I think we're like most places that way."

Stenberg specializes in reactor code development work, a computer-intensive field. Little things help. "I have a terminal at home, so I can continue to do my job when the weather is really bad," he says. "And at the office, they've put laser printers in convenient, accessible places."

What makes these little changes significant is that Stenberg is the only disabled scientist in his building. The point is to keep the work going, and Stenberg is doing just that: "I haven't missed a thing. I've been able to operate at full capacity."

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The NIH seeks to ensure that the next generation of scientists reflects the rich diversity of this Nation's citizenry. In addition, the NIH is committed to enhancing the training experience and career development of junior scientists in order that they may realize their full potential.

The following descriptions introduce the tenure-track and postdoctoral programs available at the NIH. Scientists and clinical researchers with disabilities are especially encouraged to explore these opportunities.

Tenure-Track Pathway

A little over a year ago, the NIH introduced a new tenure-track pathway providing positions equivalent to Assistant Professor. This pathway provides an opportunity for outstanding candidates completing postdoctoral training to establish themselves as independent investigators in the intramural program at the NIH. Successful applicants for tenure-track positions will be provided with a long-term commitment of salary, personnel and other resources needed to conduct an independent research program. A list of openings is posted on the TENURE conference of NIH EDNET (access described below) and is also available in hard copy from the NIH Office of Education.

Postdoctoral Training Programs

Laboratory Research Training

At the NIH, postdoctoral fellowships are available to conduct fundamental biomedical research in a wide variety of disciplines. Initial appointments are usually for two to three years. Candidates should have either a graduate doctoral degree (e.g., PhD, MD/PhD) or a professional degree (MD, DO, DDS, DMD or DVM) accompanied by previous laboratory research experience. Current postdoctoral openings are posted on the POSTDOC conference of NIH EDNET (access described below) and are available from the NIH Office of Education. An electronic catalog featuring research descriptions of NIH scientists may be accessed on the Internet.

Clinical Research and Subspecialty Training

Specialty and subspecialty training at the NIH allows physicians to become board-certified specialists and subspecialists in preparation for careers in academic medicine. Please inquire about the various clinical training opportunities available to physicians with training in Internal Medicine, Neurology, Obstetrics and Gynecology, Pathology, Pediatrics, and Surgery. Similar opportunities are available for dentists.

Loan Repayment Programs

As part of an effort to promote the career development of young residents, the NIH has developed several loan repayment offerings. Applicants may be particularly interested in the new Clinical Research Loan Repayment Program. These individuals may receive a maximum of $20,000 annually in loan repayments, in addition to attractive salaries and benefits during an initial two-year contract. Contracts are awarded on a competitive basis, and priority in funding is given to qualified health professionals from disadvantaged backgrounds who are underrepresented in biomedical/behavioral research including disabled individuals, members of minority groups, and women. For recorded information, including program summaries which are available in hard copy by fax, please call 1-800-528-7689.

Accessing Information Electronically

The NIH EDNET Bulletin Board **POSTDOC** (fellowship positions) and **TENURE** (tenure track positions) conferences are accessed via a modem (***301-402-2221*** or ***800-358-2221*** with parameters set at ***7,Even,1***) or the Internet using Telnet (***wylbur.cu.nih.gov***) or the World Wide Web (URL: ***telnet://wylbur.cu.nih***). When connected to NIH, type in ***,vt100*** for terminal emulation, ***F5E*** for initials, and ***AJL1*** for account number. To view tenure track positions, ***quit*** the **POSTDOC** conference and ***join*** the **TENURE** conference.

An electronic version of the *Postdoctoral Research Fellowship Opportunities* is accessed via the Internet using either the Gopher Information System (***gopher.nih.gov***) or the World Wide Web (URL: ***http://www.nih.gov***). When connected with Gopher, select ***Grants and Research Information*** and then ***NIH Office of Education.*** When connected with WWW, select ***Grants and Contracts*** and then ***NIH Office of Education.*** If you have further questions, please contact the NIH Office of Education, Building 10, Room 1C129, 10 CENTER DR MSC 1158, BETHESDA MD 20892-1158, Phone 301-402-1603, Fax 301-402-0483.

To learn how the NIH can play a role in your research training, please contact the NIH Office of Education for information on any of these programs.

NATIONAL INSTITUTES OF HEALTH

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ABL-Basic Research Program

POSTDOCTORAL FELLOWSHIPS

at the National Cancer Institute-Frederick Cancer Research and Development Center

Molecular Mechanisms of Carcinogenesis

George F. Vande Woude, Ph.D., Program Director – molecular basis of neoplastic transformation; function of Mos in meiosis and transformation; hepatocyte growth factor/scatter factor and the Met receptor in tumorigenesis and metastasis

Stephen H. Hughes, Ph.D. – structure and function of HIV reverse transcriptase; retroviral vectors; transgenic birds and mammals; *ski* oncogene

George N. Pavlakis, M.D., Ph.D. – eukaryotic gene regulation; molecular biology of HIV and pathogenesis of AIDS

Barbara K. Felber, Ph.D. – molecular biology of human retroviruses: post-transcriptional mechanisms of gene regulation

Peter F. Johnson, Ph.D. – mammalian bZIP transcription factors: protein structure, dimeric interactions, mechanisms of transcriptional activation, and regulatory functions during cell differentiation and development

Deborah Morrison, Ph.D. – role of the proto-oncogene c-*raf* in mitogenic and developmental pathways; structure/function analysis of c-*raf*; identification of signal-transducing molecules

David Kaplan, Ph.D. – signal-transducing molecules in mitogenesis, oncogenesis, and development with an emphasis on the nervous system; function of Trk/neurotrophin receptors

Karen Vousden, Ph.D. – molecular mechanisms of transformation by human papillomaviruses; interactions of viral oncoproteins with tumor suppressor proteins and regulators of the cell cycle

Molecular Virology and Carcinogenesis

Alan R. Rein, Ph.D. – molecular mechanisms of retroviral replication; viral pathogenicity

Nancy R. Rice, Ph.D. – study of the *rel* oncogene and the related NF-kB family of transcription factors

Chromosome Biology

Stuart J. Austin, Ph.D. – chromosome stability in bacteria: regulation of plasmid replication and distribution of copies to daughter cells; plasmid maintenance in enteric disease

Donald Court, Ph.D. – regulation of gene expression by transcription initiation, transcription termination, and RNA processing

Eukaryotic Gene Expression

Jeffrey N. Strathern, Ph.D. – recombination; pseudogene formation; DNA repair in yeast; cell type regulation; gene expression

David J. Garfinkel, Ph.D. – molecular biology of the retrotransposon Ty; genome evolution and rearrangement; insertional mutagenesis; gene regulation

Amar J.S. Klar, Ph.D. – mating-type switching of fission and budding yeast; genetics and molecular biology of recombination; gene regulation; cell differentiation and development

Chemistry of Carcinogenesis

Anthony Dipple, Ph.D. – polycyclic aromatic hydrocarbon carcinogenesis and mutational specificity; chemical carcinogen-DNA interactions

Robert C. Moschel, Ph.D. – chemical synthesis of carcinogen-modified DNA; physical chemistry of carcinogen-DNA interactions; DNA adduct-induced mutagenesis in bacteria and mammalian cells; chemotherapy adjuvants

Macromolecular Structure

Alexander Wlodawer, Ph.D. – structure of enzymes and cytokines studied by X-ray diffraction

Christopher J. Michejda, Ph.D. – antineoplastic and antiviral drug design; biochemical and molecular pharmacology

R. Andrew Byrd, Ph.D. – structure and dynamics of proteins and protein:nucleic acid complexes studied by macromolecular NMR techniques

Mammalian Genetics

Neal G. Copeland, Ph.D. – development of mouse models of human disease; neurofibromatosis; gene targeting in ES cells

Nancy A. Jenkins, Ph.D. – molecular genetics of mouse development; transgenic mice; receptor/ligand interactions and their role in development

Peter J. Donovan, Ph.D. – development of the mouse germ line; germ cell gene expression; sterile mutants; cell adhesion molecules

The ABL-Basic Research Program is dedicated to basic research in molecular biology, biochemistry, crystallography, genetics, virology, and organic chemistry. The scope of current projects is indicated by the research interests of the senior scientists listed above. Senior staff members enjoy complete independence in their choice of research problems and are accorded excellent facilities to accomplish their goals. A vigorous seminar program, implemented by formal and informal arrangements with the National Institutes of Health, Johns Hopkins University, University of Maryland, and other research and academic institutions, provides opportunities for extensive interaction within the scientific community.

The Frederick Cancer Research and Development Center is located in Frederick, Maryland, which with its proximity to Washington, D.C. and Baltimore, offers a rich scientific and cultural environment, as well as a quiet country setting.

Fellowships are awarded on an equal opportunity basis to recent recipients of an M.D., a Ph.D., or an equivalent degree in the biological or biochemical sciences. Postdoctoral training opportunities are available with the staff members listed above as well as other scientists associated with the Program.

Appointments are made for one to three years.

Annual stipends generally range from $25,000 to $31,000, depending upon experience.

Applications are accepted at any time during the calendar year. Interested individuals are encouraged to apply well in advance of their availability date. The ABL-Basic Research Program does not discriminate in employment on the grounds of sex, race, color, age, religion, disability, or national origin.

To apply, send a letter describing your research interests, a curriculum vitae, and the names and addresses of three references to the investigator(s) of interest, c/o:

ABL-Basic Research Program
Personnel Department/SC
NCI-FCRDC
P.O. Box B, Bldg. 428
Frederick, Maryland 21702-1201

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high school students to a business environment. In 1991, SKB joined with Project Self, run by Big Sisters of Philadelphia, to expand BEEP to include high school students with disabilities. "With the ADA taking effect," Jordan says, "we saw this as a great way to get some of that untapped work force that America was not using, and also to help students with disabilities determine a career path." About 30 students have completed the program since then.

After attending seminars in résumé writing, interviewing skills, and the expectations of the work world, students are placed in competitive work environments under close supervision. "They have to apply for their positions," Jordan says. "The rules are the same as for any other applicants."

In 1994, for the first time, the program offered internships at the SmithKline Beecham R&D site in Upper Merion, Pennsylvania. Five students were involved, working 40 hours a week for eight weeks, some directly in lab work. Michael Ryan, an intern who is also a hemophiliac, learned what daily work life is like for the professional scientist, and he now wants to become one himself. "I'd like to become a hematologist," he says, "and work in a clinic, where I could see patients, and a lab, where I could do research."

In 1995, 15 more high school students will take part, five of them in scientific positions. "We are piloting a program for college students this summer also," Jordan says. "We expect to place five students in scientific internships and another five in nonscientific internships."

Jordan sees a good future for scientists with disabilities—but only for those who seize the opportunity. Disabled students often don't know what's possible, and many don't have truly solid career aspirations. U.S. Department of Labor statistics suggest that only 29 percent of all youth with disabilities work full time. In some categories, such as orthopedic disabilities, that number can be as low as 1.3 percent. "We direct their interest to the sciences," Jordan says, "give them the hands-on experience they need, to show them what they need to become a scientist, a marketing manager, a researcher. The disability doesn't matter, as long as you can do the job."

Jacquelyn Brand
executive director
Foundation for Technology Access

"The role of the Foundation is to introduce communities to assistive technology and to promote the increased accessibility and usability of that technology in education and employment.

In high school and even earlier, many students with disabilities are not participating in science programs. Either they are not introduced to science or they are not expected to perform at the level of their peers. Associations like ours can fix the problems of access—but it's harder to change the attitudinal problem.

Technology can help even there. We work with teachers and trainers at 1,400 school districts across the country. The idea is to get in the door, using technology to integrate students into programs they don't think they can join. Most teachers don't understand that these students can participate. But when they see the many ways that new devices—sometimes low-tech devices, as low-tech as a good old tape recorder—can ease the access barrier, their ideas begin to change.

Students with learning disabilities, for example, may have great potential as scientists, but some end up thinking they're not smart enough or can't compete. Word-processing programs have been a great benefit here. Students with spelling and handwriting problems now have access to a range of grammar-checking and spell-checking programs. It's a simple thing, but it can be critical for their self-image and career choice.

I know about these things, partly because I have a daughter with a reading disability. Just being able to tape record materials helped her transcend it, and she's now in medical school."

Rube Goldberg and SCUBA Diving: Todd Blumenkopf of Glaxo Wellcome

"When I was in school," Todd A. Blumenkopf says, "the world wasn't designed for people in wheelchairs. From day one I had to come up with my own solutions."

Blumenkopf has been a senior research scientist for nine years at the Burroughs Wellcome Co., which is now part of Glaxo Wellcome. He has had spina bifida since birth, and he has watched the recent renaissance in assistive technologies transform the possibilities for scientists with special needs.

"At graduate school at Berkeley, I simply had to transform my environment any way I could. You could call it the Rube Goldberg approach. For fifty dollars we modified my bench, lowering the valves, making it easier for a seated person to get at things. Remember, this was before most streets had curb cuts. I had to find a way, in the lab and on the street, to get along by myself. And I found that I got better at it with experience."

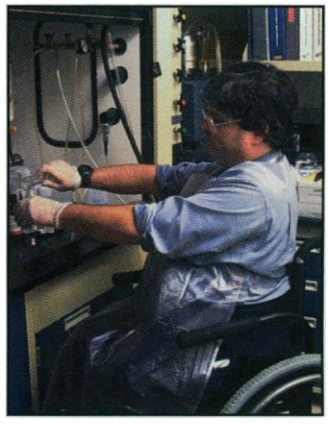
Blumenkopf completed his PhD in chemistry at Berkeley, doing his thesis work on organic alkaloid synthesis. A postdoc followed at the University of California at Irvine. In his graduate and postgraduate work, Blumenkopf had what he calls "a bit of a credibility gap" to get over, "more so certainly than the majority of scientists." Acceptance came, however, as he proved his skills. "That's the way it is for any scientist. You have to prove yourself. I was always confident I could do that."

In the workplace, Blumenkopf has continued to establish himself as a chemist of the highest order. He is proud of his work as sole inventor of a drug candidate targeted for treating herpes labialis. His recent work has centered on new approaches to cancer therapy. He also is active in the disabilities field, serving on the ACS Board Committee on Chemists with Disabilities. He finds the new technologies heartening, especially after the Rube Goldberg years. "The lack of accommodations used to limit the number of people with disabilities who could go into science. But standardized equipment is making accommodation less and less expensive. When you're building a new lab, you can think in terms of making that lab accessible to the widest, most physically diverse range of people. That's good for science."

One disturbing trend, he says, is that "I don't see that many new students coming into science." It's not that the interest isn't there. "The hard sciences are perceived as inappropriate for people with disabilities," Blumenkopf says. Disabled students are steered towards other subjects, often by mentors who believe they are doing those students a favor.

To get out the message that science is for anyone, Blumenkopf participates in a weekend camp for teens and young adults with spina bifida. "We talk about how to get more out of your life. The main thing is, most of these kids don't realize science is a career option for them. But I can show them a role model with a good job, good income, a house, the things in life that people consider 'normal.' "

Blumenkopf's message is that becoming a scientist was hard work and that the work was worth it. That applies both to becoming a scientist and to becoming a SCUBA diver. Blumenkopf brings his gear—and his teacher—to the camp to reinforce his point. "The student who has always assumed 'I can't do it' might see me and say, 'Well, maybe I can.'"



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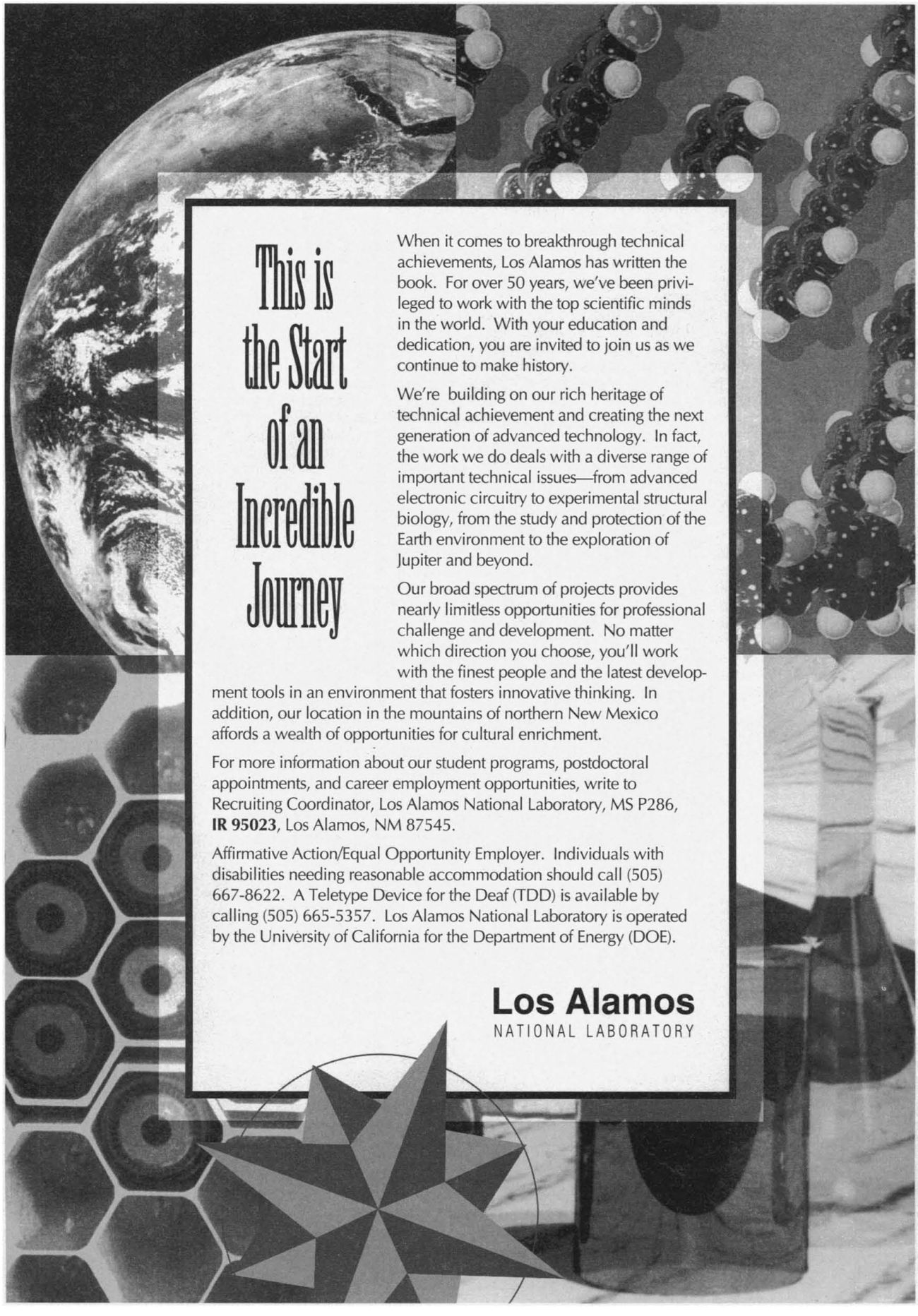
Todd Blumenkopf of Glaxo Wellcome



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Finding the Formula: AAAS Initiatives for Scientists with Disabilities

Virginia W. Stern is the director of the AAAS Project on Science, Technology, and Disability, part of the AAAS Directorate for Education and Human Resources Programs. "Our goal," says Stern, "is the entry and advancement of people with disabilities in science, mathematics, and engineering." That includes students from all levels of education—from preschool through postdoctoral research—and employment.

Pursuit of these goals has evolved and expanded since the founding of the Project in 1975. First efforts aimed at making professional meetings more accessible to disabled scientists—and in fact the 1976 AAAS meeting was the first fully accessible scientific meeting. At the same time, the Project began developing a Resource Group of scientists and engineers with disabilities. "That was hard because no one knew who or where these scientists were," Stern says. "We put out searches through *Science* and affiliate journals requesting these people to self-identify so others could benefit from their experience." The Project now offers a directory of over 1,000 scientists and engineers with disabilities.

As an information hub, the Project links disabled scientists and the communities of relatives, teachers, and co-workers around them. "We give direct and indirect assistance to people who are disabled—and that includes families, mentors, colleagues, and counselors," Stern says. "We make information available. We hold conferences and produce publications. We never stop."

Components of the Project include the resource group; a special project on engineering degrees; a consortium of scientific and engineering societies focusing on technology and services for people with disabilities; continuing efforts to ensure barrier-free professional meetings and workshops; a videotape, entitled "The Problem Solvers: People with Disabilities in Engineering Careers," underwritten by NEC Foundation of America and NASA; linkage programs with community-based groups (e.g., Recording for the Blind, the A.G. Bell Association for the Deaf, and United Cerebral Palsy Associations) to develop programs in mathematics and science; and information on policy issues, assistive technology for classrooms and labs, and science education from preschool to postsecondary levels.

Asked for the most important current trend, Stern immediately replies, "Developments in assistive technologies. There's no question. They have really exploded in certain fields. Perhaps the most important of all has been the computer. People with disabilities who previously might have been unable to be active in certain disciplines now can—because computer literacy is bound to be involved somewhere."

A great deal has changed in two decades, not the least of which has been the federal civil rights effort, culminating in 1990 with the ADA. Stern stresses, however, that the biggest changes always happen on the personal level. (This is a message that resonates in the titles of some of the Project's career planning guides: "You're in Charge" and "Find Your Future.") For all scientists in both academic and industrial science, Stern says, "You don't get in unless you have the education and you're in a marketable field." That means a concerted personal effort, first to imagine science as a career, and then to take the necessary steps.

Much work remains. "We'd still like to know more about the numbers of disabled students actually considering science as a career," Stern says, "and there are still some sectors about which we don't have the best information—for example, industrial science." AAAS is working with the Engineering Workforce Commission, the American Statistical Association, and the US Bureau of the Census to improve methods of documenting the number and career tracks of scientists who have disabilities.

Those tracks are many and various. "Each individual has to deal with his or her functional limitations and intellectual gifts to persist in science," Stern says. "There isn't a formula for success, not for the able and not for anyone else."

For more information, contact Virginia W. Stern, AAAS Directorate for Education and Human Resources Programs, Project on Science, Technology and Disability, 1333 H Street, NW, Washington, DC 20005; Telephone (202) 326-6630 (V/TDD); E-mail: vstern@aaas.org.

–John Timpane

John Timpane, PhD, writes frequently on pharmaceuticals and biotechnology.

The following is a select list of information sources for scientists with disabilities.

For Scientists and Science Students with Disabilities:

American Chemical Society
1155 16th Street, NW
Washington, DC 20036

ACS Committee on Chemists with Disabilities
Corinne Morasco
(800) 227-5558
(202) 872-4438 (V/TDD)

Association on Higher Education & Disability (AHEAD)
PO Box 21192
Columbus, OH 43221-0192
(614) 488-4972 (V/TDD)

Foundation for Science and Disability
E.C. Keller, Jr., Treasurer
236 Grand Street
Morgantown, WV 26505-7509
(304) 293-5201

The Foundation on Employment and Disability, Inc.
3829 Del Amo Boulevard
Suite 246
Torrance, CA 90503
(310) 214-3430
(310) 214-1413 (TDD)

HEATH Resource Center
One Dupont Circle, NW
Suite 800
Washington, DC 20036-1193
(800) 544-3284 (V/TDD)
(202) 939-9320

The Science Association for Persons with Disabilities
Ben Van Wagner, President
Fresno Pacific College
1717 South Chestnut Avenue
Fresno, CA 93702
(209) 453-2278
(209) 453-2007

For Information on Assistive Technologies:

National Easter Seal Society
230 West Monroe
18th Floor
Chicago, IL 60606
(312) 726-6200

Foundation for Technology Access
Jacquelyn Brand, Director
2173 East San Francisco Blvd.
Suite L
San Francisco, CA 94901
(415) 455-4575

Center for Special Education Technology
The Council for Exceptional Children
1920 Association Drive
Reston, VA 22091-1589
(703) 620-3660

For Specific Disabilities:

National Center for Learning Disabilities
381 Park Avenue South
Suite 1420
New York, NY 10016
(212) 545-7510
(202) 879-5767 (Washington, DC)

National Federation of the Blind
1800 Johnson Street
Baltimore, MD 21230
(410) 659-9314

American Foundation for the Blind
11 Penn Plaza, Suite 300
New York, NY 10001
(800) 232-5463
(212) 502-7600

Alexander Graham Bell Association for the Deaf
3417 Volta Place, NW
Washington, DC 20007
(202) 337-5220 (V/TDD)

National Technical Institute for the Deaf
Rochester Institute of Technology
52 Lomb Memorial Drive
PO Box 9887
Rochester, NY 14623-0887
(716) 475-6200 (V/TDD)

National Spinal Cord Injury Hotline
American Paralysis Association
c/o Montebello Rehabilitation Hospital
2201 Argonne Drive
Baltimore, MD 21218
(800) 526-3456

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Qualifications: These positions require specific course work in the field of study and professional experience or directly related postgraduate education for positions above the entry level. Advanced training and/or experience in one or more of the following areas, is desirable: cell and molecular biology and immunology, virology, cytokines and growth factors or related disciplines. **U.S. citizenship is required.**

Location: Offices and laboratories are strategically located on the campus of the National Institutes of Health in Bethesda, Maryland, or in close proximity to the campus.

Salary: Civil Service salary range for GS-5 through GS-13 is $19,732 to $67,021 per annum, plus an excellent benefits package and flexible work schedules. Salary and level of responsibility are commensurate with education and experience.

How To Apply: Applications are accepted throughout the year, and candidates should indicate when they will be available for employment. Interested candidates should send an Application for Federal Employment (SF-171), Optional Application for Federal Employment (OF-612), or a current detailed Curriculum Vitae/Resume along with bibliography, statement of regulatory/research interest, transcripts, and names of three references to:

FDA/Center for Biologics Evaluation & Research
1401 Rockville Pike, HFM -60
Rockville, Maryland 20852-1448
Attention: EEO Recruitment Coordinator (240)

POSITIONS OPEN

POSTDOCTORAL POSITION
X-ray Crystallography

Two NIH-funded **POSTDOCTORAL POSITIONS** are available immediately to study the structure and function of enzymes involved in lipopolysaccharide biosynthesis with the aim of developing these enzymes as antibacterial drug targets. Applicants should either have experience in macromolecular cystallography or a strong desire to extend their biophysical training to this field. Applicants should send a complete curriculum vitae, a summary of current research, a statement of future goals and the names of three references to: **Dr. Steven L. Roderick, Department of Biochemistry, Albert Einstein College of Medicine, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, Bronx, NY 10461-1975.** *An Equal Opportunity Employer.*

BAYLOR COLLEGE OF MEDICINE
Postdoctoral Position in Molecular Biology

Available July 1, 1995. Project to investigate changes in transcription factors for the steroidogenic enzyme genes involved in age-related changes in adrenal androgen biosynthesis and adrenal cell proliferations. Previous molecular biology experience essential. Salary negotiable dependent on experience. Please send curriculum vitae to: **Peter Hornsby, Ph.D., Huffington Center on Aging, Baylor College of Medicine, One Baylor Plaza, M320, Houston, TX 77030-3498. Telephone: 713-798-7334; Email: phornsby@bcm.tmc.edu.**

Baylor College of Medicine is an Affirmative Action/Equal Opportunity/Equal Access Employer.

A **POSTDOCTORAL POSITION** with **F. E. Curry** and **R. H. Adamson** will be available September 1995 for an individual with expertise in endothelial cell adhesion or cytoskeleton. Experiments focus on measurement of single capillary permeability. A Ph.D. or M.D. in relevant areas of physiology, cell biology or molecular biology is required. For details contact **rhadamson@ucdavis.edu**. Send curriculum vitae and names of three references to: **Dr. R. H. Adamson, Department of Human Physiology, University of California, Davis, CA 95616.** *The University of California, Davis is an Equal Opportunity/Affirmative Action Employer. Minority and female applicants are encouraged to apply.*

POSTDOCTORAL POSITION is available to study and develop novel antiviral agents in the area of HIV and DNA viruses. Pharmacological and molecular approaches are combined to study the metabolism of the agents in hematopoietic systems and their mechanism of action. Current projects are especially concerned with mechanism of drug resistance to therapeutic agents and cellular damage mediated by these agents. Candidates should have significant expertise in molecular biology, biochemistry and tissue culture preferably with some experience working with HIV or DNA viruses. Please send curriculum vitae and names of three references to: **Dr. Arnold Fridland, Department of Infectious Diseases, St. Jude Children's Research Hospital, Memphis, TN 38105. Email: Fridland@mbcf.stjude.org.** *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available January 1996 to study the molecular mechanisms of signal transduction through GTPases in the Ras superfamily. Projects involve structure determination by NMR and biochemical characterization of regulators and effectors of Rho/Rac-family GTPases. Candidates should have experience in protein analysis by multidimensional NMR, and in the molecular biological and protein biochemical techniques necessary to generate materials for these studies. Send curriculum vitae and two reference letters to: **Dr. Michael K. Rosen, Cellular Biochemistry and Biophysics Program, Memorial Sloan-Kettering Cancer Center, Box 576, 1275 York Avenue, New York, NY 10021**. Inquiries may also be made by **Email to rosen@pound.med.utoronto.ca.**

POSTDOCTORAL POSITION. A research position is available for an experimental hematologist to investigate the effect of *ex vivo* expansion culture techniques on hematopoietic stem cell proliferation and homing. A recent Ph.D. or M.D. with experience investigating stem cell proliferation at the cellular and molecular level is required. Specific background in stem cell selection and culture and molecular biological techniques (PCR and FISH) is preferred. Send curriculum vitae and three letters of reference by July 15, 1995, to: **Dr. Catherine Verfaillie, University of Minnesota, Box 480 UMHC, 420 Delaware Street SE, Minneapolis, MN 55455.** *The University of Minnesota is committed to Equal Employment Opportunity and Affirmative Action.*

DANA FARBER CANCER INSITUTE
HARVARD MEDICAL SCHOOL

POSTDOCTORAL POSITIONS. To study signal transduction, cytokine cascades and transcriptional regulation in (1) cells responding to stress (heat shock, oxidative, radiation) and acute inflammation and (2) during hematopoietic development. Experience in molecular biology (gene expression/transcription regulation) and protein biochemistry. Send curriculum vitae to: **Drs. S. K. Calderwood** and **M. A. Stevenson, Dana Farber Cancer Institute, JFB 205, 44 Binney Street, Boston, MA 02115.**

An Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF TEXAS MEDICAL BRANCH
GALVESTON

A **POSTDOCTORAL POSITION** available immediately in Experimental Pathology Division will investigate the biochemical and molecular mechanisms of vascular injury by toxic substances; established NIH-funded laboratory within strong, collaborative University Toxicology Program. Send curriculum vitae with names and telephone numbers of three references to: **Paul J. Boor, M.D., University of Texas Medical Branch, 301 University Boulevard, Department of Pathology, Galveston, TX 77555-0605.** *The University of Texas Medical Branch (UTMB) is an Equal Opportunity/Affirmative Action Employer. Minority/Female/Disabled/Veteran. UTMB hires only individuals authorized to work in the United States.*

INSTITUTE OF MOLECULAR BIOLOGY (IMB)
ACADEMIA SINICA, TAIWAN, ROC

POSTDOCTORAL POSITIONS available immediately to work on (1) molecular neurobiology and/or (2) DNA modification and developmental gene regulation. Recent Ph.D. with research experience and interests in relevant fields are encouraged to apply. Candidates with a knowledge and techniques of one or more of the following are encouraged to apply: recombinant DNA, protein isolation, protein-DNA interaction, mammalian cell culture, and yeast cloning system. Salary $24,000 to $28,500 per annum. Please send curriculum vitae and three letters of reference to: **Director, c/o Ms. Fei Chen, Institute of Molecular Biology, Academia Sinica, Nankang, Taipei 115, Taiwan, ROC. FAX: 886-2-782-6085.**

POSTDOCTORAL POSITION in Lipids/Carbohydrates available immediately. The focus of the research is to understand the reactions and regulation of the lipid-linked glycosylation pathway using somatic cell mutants. The research will include use of steady-state labeling, *in vitro* reactions, and separation techniques already available in the lab. Experience in lipid or carbohydrate biochemistry and cell culture is desirable. Funding available for U.S. citizens and permanent residents only. Send curriculum vitae and names of three references to: **Dr. S. S. Krag, Department of Biochemistry, Johns Hopkins University, 615 North Wolfe Street, Baltimore, MD 21205.** *Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available immediately to study peptide design, structure and molecular dynamics. Research projects will require the use of automated peptide synthesis, magnetic resonance techniques (ESR and NMR), vibrational and optical spectroscopy. Applicants should have experience with two or more of these techniques and have a Ph.D. in Chemistry, Biochemistry or closely related field. Please send curriculum vitae and two letters of recommendation to: **Dr. Glenn L. Millhauser, Department of Chemistry and Biochemistry, University of California, Santa Cruz, CA 95064.**

Two **POSTDOCTORAL POSITIONS** available: 1) Ribozymes: expertise in RNA techniques. Working experience with ribozymes and/or *in vitro* selection technique is desirable. 2) Protein engineering: expertise in the study of ligand-binding to proteins. Experience in molecular modeling, and/or in site-directed mutagenesis is desirable. Salary is commensurate with experience. Send résumé, research summary and list of references to: **Prof. Yi Lu, Department of Chemistry, University of Illinois at Urbana-Champaign, Urbana, IL 61801.**

POSTDOCTORAL POSITION available immediately to study photoregulatory signal transduction in Arabidopsis. Experience in molecular biology and biochemistry is required. Please send curriculum vitae and three letters of reference to: **Anthony R. Cashmore, Director, Plant Science Institute, Department of Biology, University of Pennsylvania, Philadelphia, PA 19104-6018.**

POSTDOCTORAL POSITION
Salmonella Genetics

Available immediately. Second year of five year NIH project. Contig of lambda clones for the entire *Salmonella* genome was compared to *E. coli*. Point and deletion mutants in *Salmonella*-specific loops to be characterized by conventional methods and by RNA fingerprinting (differential display). Supervise technician. See *PNAS*, **91**:639; *J. Bact.*, **176**:5729; *TIG*, June 1995. Inquiries to: **Dr. Michael McClelland, Director, California Institute of Biological Research, 11099 North Torrey Pines Road, La Jolla, CA 92037. FAX: 619-535-5472; Email: McClelland@lifsci.sdsu.edu.**

POSTDOCTORAL POSITION available immediately to study protein-nucleic acid recognition in SOS response system. Relevant expertise in biochemistry/molecular biology/biophysical chemistry preferred. Send curriculum vitae and names of references to: **Dr. Sandra Shaner, Department of Chemistry, Wayne State University, Detroit, MI 48202. Telephone: 313-577-3513; FAX: 313-577-8822.** *Wayne State University is an Equal Opportunity/Affirmative Action Employer. All buildings, structures and vehicles at Wayne State University are smoke-free. Wayne State University—People working together to provide quality service.*

POSTDOCTORAL POSITIONS. Available in Departments of Biochemistry, Cell Biology and Anatomy, Microbiology and Immunology, Molecular and Cellular Biology, Pathology, Pharmacology/Toxicology, and Physiology. Applicants must have a Ph.D. or M.D. degree. Positions available during 1995 and 1996. Review of applications begins July 31, 1995, and will remain open until positions are filled. Send applications to appropriate department head; **The University of Arizona, Arizona Health Science Center, Tucson, AZ 85724.** *Equal Employment Opportunity/ADA/Affirmative Action Employer. Women and minorities are urged to apply.*

THE CENTER FOR INDOOR AIR RESEARCH
POSTDOCTORAL FELLOWSHIP PROGRAM

The Center for Indoor Air Research (CIAR) is accepting applications for the CIAR **POSTDOCTORAL FELLOWSHIP** Program. The purpose of this program is to further develop the scientific productivity of outstanding young men and women pursuing careers in indoor air research and to stimulate interest in entering the field of indoor air research among individuals with strong backgrounds in related or allied sciences. For details and application brochure, write or call: **Center for Indoor Air Research, Postdoctoral Fellowship Program, 1099 Winterson Road, Suite 280, Linthicum, MD 21090. Telephone: 410-684-3777; FAX: 410-684-3729**. Deadline for receipt of application: October 31, 1995.

POSTDOCTORAL FELLOWSHIP: Available immediately to study the role of lipoproteins and lipids in the modulation of synaptic transmission in the hippocampus, and hippocampal cells in culture. The relevance to nutrient balance will be emphasized. A background in neural sciences is necessary; a knowledge of nutrition/metabolism is desirable. Send curriculum vitae and three references to: **Dr. Robert H. Eckel, Division of Endocrinology, Metabolism and Diabetes, Box B151, University of Colorado Health Sciences, 4200 East 9th Avenue, Denver, CO 80262. FAX: 303-270-4525.**

University of Colorado Health Sciences Center is committed to Equal Employment Opportunity and Affirmative Action.

MOLECULAR VASCULAR BIOLOGY

POSTDOCTORAL FELLOWSHIP. Molecular Vascular Biology, Atherosclerosis Research Unit, Division of Cardiology, UCLA School of Medicine. Research and publication background in molecular and cell biology desired. Fax curriculum vitae to: **310-825-4963** or send to **47-123 Center for the Health Sciences, UCLA School of Medicine, Los Angeles, CA 90065-1679.** *UCLA is an Affirmative Action/Equal Opportunity Employer.*

ASSOCIATE RESEARCH SCIENTIST with solid cellular immunology skills essential. Experience generating antigen-specific T cell lines and clones, T-T hybridomas, and animal models for autoimmune diseases and adaptive transfer of T cells. Send curriculum vitae and references to: **Dr. Leonard Chess, Columbia University, Department of Medicine, Division of Rheumatology, 630 West 168th Street, PH 8E, Suite 101, New York, NY 10032.** *Columbia University takes affirmative action toward equal opportunity.*

Tenure-Track And Postdoctoral Opportunities.

Listed below are some of the outstanding research training opportunities that are currently available at the National Institutes of Health.

Tenure-Track Position

Assistant Professor Equivalent

Molecular Mechanisms of Respiratory Diseases
Paul Nettesheim, MD

A position is available to develop an independent research program, supported by intramural funds, in cellular and molecular mechanisms of respiratory biology and diseases. Extensive postdoctoral experience in molecular biology, developmental biology, signal transduction or biochemical mechanisms of inflammation is required. A two-page statement of research interests and goals should be submitted in addition to three letters of recommendation. Laboratory of Pulmonary Pathobiology (OE-87), NIEHS, P.O. Box 12233, MD D2-01, Research Triangle Park, NC 27709.

Postdoctoral Positions

Cell Cycle Regulation
Frank Ruscetti, PhD

Cloning and characterization of novel mammalian cell cycle regulated genes is being studied. Applicants must have an interest in cell cycle regulation and a strong background in protein biochemistry and immunohistochemical methods. Experience in protein purfication, metabolic labeling with orthophosphate and phosphopeptide mapping is preferred. Working knowledge of PCR and basic molecular biological techniques is helpful and must have less than five years of postdoctoral experience. Laboratory of Leukocyte Biology (OE-87), NCI-FCRDC, Building 567, Room 254, Frederick MD 21702-1201.

Growth Factors and Signal Transduction
Gibbes R. Johnson, PhD

The research focuses on understanding the mechanisms of growth factor action with an emphasis on growth factors which induce signaling through the epidermal growth factor receptor and structurally-related receptors. Studies involve mechanisms of receptor activation and downstream signaling events. Candidates should have less than five years of postdoctoral experience. Laboratory of Cell Biology (OE-87), FDA/CBER, Division of Cytokine Biology (HFM-511), 1401 Rockville Pike, Rockville, MD 20852-1448.

Molecular and Cell Biology
Y. Peng Loh, PhD

The intracellular trafficking and processing of pro-hormones are being studied. Molecular and cell biological tools are used to identify the molecular signals and mechanisms for sorting and targeting pro-hormones to the regulated secretory pathway. Enzymes involved in pro-hormone processing are also being analyzed. Applicants must have training in recombinant DNA technology, protein biochemistry and cell culture techniques and have less than five years of postdoctoral experience. Laboratory of Developmental Neurobiology (OE-87), NICHD, Building 49, Room 5A38, 49 CONVENT DR, MSC 4480, BETHESDA MD 20892-4480.

Molecular Biology of Neurodegeneration
John W. Kusiak, PhD

Adenoviral vectors are being used to express various forms of amyloid precursor protein in the intact brain in order to investigate its role in neurodegeneration and response to injury. The investigation involves extensive inter-laboratory collaborations among molecular and cellular biologists, anatomists, and behaviorists. Applicants must have expertise in molecular biology, including construction and utilization of viral vectors and must be US citizens or permanent residents. Laboratory of Biological Chemistry (OE-87), NIA, Gerontology Research Center, Hopkins Bayview Research Campus, 4940 Eastern Avenue, Baltimore, MD 21224.

Molecular Neurobiology of Aging
Jeffrey M. Chernak, PhD

The regulation of genes associated with Parkinson's disease, Alzheimer's disease, and neurodegeneration during aging are being investigated using *in vitro*, bacterial, viral, cell culture, and animal model/gene therapy systems. Applicants should have laboratory experience in molecular biology, gene regulation and DNA-protein interactions, as well as an interest in neurobiology and aging. Candidates must be US citizens or permanent residents. Laboratory of Cellular and Molecular Biology (OE-87), NIA, Gerontology Research Center, Room 4E15, Hopkins Bayview Research Campus, 4940 Eastern Avenue, Baltimore, MD 21224.

Additional Opportunities

The NIHEDNET Bulletin Board **POSTDOC** (fellowship positions) and **TENURE** (tenure track positions) conferences are accessed via a modem (***301-402-2221 or 800-358-2221*** with parameters set at ***7,Even,1***) or the Internet using Telnet (***wylbur.cu.nih***) or the World Wide Web (URL: ***telnet://wylbur.cu.nih***). When connected to NIH, key in ***,vt100*** for terminal emulation, ***F5E*** for initials, and ***AJL1*** for account number. To view tenure track positions, ***quit*** the **POSTDOC** conference and ***join*** the **TENURE** conference.

An electronic version of the *Postdoctoral Research Fellowship Opportunities* catalog is accessed via the Internet using either the Gopher Information System (***gopher.nih.gov***) or the World Wide Web (URL: ***http://www.nih.gov***). When connected with Gopher, select ***Grants and Research Information*** and then ***NIH Office of Education.*** When connected with WWW, select ***Grants and Contracts*** and then ***NIH Office of Education***. If you have further questions, please contact the NIH Office of Education, Building 10, Room 1C129, 10 CENTER DR MSC 1158, BETHESDA MD 20892-1158, Phone 301-496-2427, Fax 301-402-0483.

To Apply

If you hold a graduate doctoral degree (e.g., PhD, MD/PhD) or a professional degree (MD, DO, DDS, DMD or DVM) accompanied by previous laboratory research experience, and would like to be considered for one of these positions, please send a cover letter, *curriculum vitae*, bibliography, and statement of research interests to the address listed with each position. In addition, please arrange to have letters of recommendation sent from three scientists who can provide an evaluation of your qualifications.

NATIONAL INSTITUTES OF HEALTH

National Institutes Of Health

Office Of Education

The NIH is an Equal Opportunity Employer

POSITIONS OPEN

UNIVERSITY OF VIRGINIA
DEPARTMENT OF MICROBIOLOGY

Viral Pathogenesis/Gene Regulation

The Department of Microbiology, University of Virginia is seeking an outstanding scientist for the tenure- track position of **ASSISTANT** or **ASSOCIATE PROFESSOR**. The successful candidate is expected to develop a high quality research program in viral pathogenesis, the molecular analysis of viral and/or eukaryotic gene expression, or related areas. Of particular interest to the Department are candidates whose research areas focus on the regulation of gene expression by latent and/or oncogenic viruses, expression of cell cycle regulated genes and mitogen/hormone regulated gene expression. The Department of Microbiology offers an outstanding environment for research on molecular genetics, immunology, virology and cellular signaling as well as outstanding opportunities for graduate and postgraduate training. Applicants should submit a curriculum vitae, a concise statement of research interests and selected reprints. These and three letters of reference should be sent to: **Chair, Microbiology Search Committee, Box 441, Health Sciences Center, University of Virginia, Charlottesville, VA 22908**. Applications should be received by September 1, 1995. *The University of Virginia is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minority scientists.*

Physical limnology/oceanography. The University of Minnesota has established the Large Lakes Observatory (LLO) on its Duluth Campus as part of its institution-wide lake studies program. The mission of LLO is to study large lakes of the world. The LLO invites applications for a tenure-track faculty position at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level in Physical Limnology. Six new tenure-track positions, carrying nine-month salaried appointments, are being filled between 1995 and 2000. Two of these positions have been filled in the areas of isotope geochemistry and geophysics. Three are to be filled in physical limnology and the final position will be filled in aquatic chemistry.

Emphasis for the current position is on acquisition and analysis of data pertaining to circulation dynamics in large lakes. Candidates are expected to establish field-oriented research programs that include strong analytical/modeling capabilities. Candidates should have a strong background in physics and hold a Ph.D. in oceanography, limnology or a related field.

The appointment will be split between the LLO and the Physics Department on the Duluth Campus, where the tenure line will reside. A commitment to teaching at the graduate and undergraduate levels is required. The teaching load will be commensurate with the departmental portion of the appointment.

Send a statement of research and teaching interests, curriculum vitae, and names, addresses and telephone numbers of at least three references by August 1, 1995, to: **Prof. Thomas C. Johnson, Director, Large Lakes Observatory, University of Minnesota, Duluth, MN 55812**. Prospective candidates with questions about the position may contact **Tom Johnson** by Email at **tcj@d.umn.edu**.

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

FACULTY POSITION
Experimental Gravitational Physics

The Department of Physics at MIT is seeking candidates for a faculty position in experimental gravitational physics. MIT is collaborating with Cal Tech in developing the Laser Interferometer Gravitational Wave Observatory (LIGO). This will be a national facility dedicated to the detection of gravitational waves from astrophysical sources and will provide unique research opportunities in physics and astrophysics. The successful candidate will engage in undergraduate and graduate education and will establish an independent research program in experimental gravitational physics. He/she may also participate in the development of LIGO. Appointment at the **ASSISTANT PROFESSOR** level or, for an exceptionally qualified candidate, at the senior level will be considered. Given the developing nature of this field, candidates with varied experimental backgrounds will be considered. Applications are requested before October 1, 1995. Applicants should send a curriculum vitae, a brief description of current research, and three letters of recommendation to: **Professor Saul Rappaport, Center for Space Research, Room 37-551, MIT, Cambridge, MA 02139-4307.** *MIT is an Equal Opportunity/Affirmative Action Employer. MIT is a non-smoking environment.*

FACULTY POSITION IN TOXICOLOGY
UNIVERSITY OF CALIFORNIA, IRVINE

Applications are invited for a **TENURE-TRACK** or **TENURED POSITION** in the Department of Community and Environmental Medicine, College of Medicine. Qualifications include: (1) Ph.D. or M.D. degree; (2) a proven record or outstanding promise of research accomplishment and funding; and (3) investigative experience in cell-cell communication and inflammation in toxic mechanisms. Experience in air pollution or inhalation toxicology is required. Participation in The Graduate Program in Environmental Toxicology and in obtaining extramural research support is expected.

Level of appointment and salary will be commensurate with achievement and experience. Curriculum vitae, names and addresses of three to four references, and a summary of research interests should be sent to: **Daniel B. Menzel, Ph.D., Professor and Chair, Department of Community and Environmental Medicine, University of California, Irvine, CA 92717-1825.**

University of California, Irvine is an Equal Opportunity/Affirmative Action Employer Rooted in Education; Enriched by Diversity.

FACULTY

The University of Illinois at Chicago Section of Rheumatology is seeking an outstanding candidate with an M.D. or M.D.-Ph.D. at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Strong background im Immunology and Cell Biology and interest in application of basic sciences to the understanding, diagnosis and treatment of rheumatic diseases. Interest in inflammation and cytokines is highly desirable. Must be Board-certified in Allergy or Rheumatology. Excellent facilities and generous start-up package with goal of establishing independent funded research program. Opportunities for collaboration and joint appointments in basic science departments. Send a curriculum vitae, current and future research plans and three references to: **John Varga, M.D., Chief, Section of Rheumatology, University of Illinois at Chicago, 840 South Wood Street, Chicago, IL 60612.** *Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITIONS
DIVISION OF INFECTIOUS DISEASES
Institute of Biomedical Sciences, Academia Sinica
Taipei, Taiwan, ROC

The Division of Infectious Diseases of the Institute of Biomedical Sciences is seeking to fill one to two tenure-track positions at the **ASSISTANT/ASSOCIATE/FULL PROFESSOR** level to work in the area of viral pathogenesis. Research in human disease is a plus but not obligatory. We are interested in attracting outstanding researchers with strong research records and a commitment to developing independent and innovative research programs.

Interested individuals should submit applications including curriculum vitae, summary of research accomplishments and future research plans and names of three references to: **Dr. Sho-Tone Lee, Institute of Biomedical Sciences, Academia Sinica, Taipei 11529, Taiwan, ROC**. Informal inquiries can be made by **telephone: 02-789-9170; FAX: 02-785-3569; Email: bmtom@ccvax.sinica.tw.edu**.

Postdoctoral Fellow positions are also available in the division in the field of molecular parasitology (Leishmania, Trichomonas and Angiostrongylus), cytokine research and HIV surface proteins.

FACULTY POSITION
THE WEIZMANN INSTITUTE OF SCIENCE

The Department of Biochemistry at The Weizmann Institute of Science, Rehovot, Israel is seeking applicants for a tenure-track position at the Senior Scientist (**ASSISTANT PROFESSOR**) level starting in the winter of 1996 or later. The Department of Biochemistry provides an excellent and stimulating research environment with groups conducting research in molecular genetics (gene expression, DNA replication and repair) and bioenergetics (membrane transport systems and photosynthesis). Candidates are sought in these and other areas of biology, preferably with a background in protein-DNA interactions, molecular or developmental genetics, enzymology, or protein structure and biophysical methods. The successful candidate is expected to establish an independent and creative research group.

Applications should include research plans, curriculum vitae, list of publications and the names of three references, and should be sent to: **Prof. Zvi Livneh, Head, Department of Biochemistry, Weizmann Institute of Science, Rehovot 76100 Israel.**

FACULTY POSITION
CLINICAL PHARMACOLOGY
JEFFERSON MEDICAL COLLEGE

The Division of Clinical Pharmacology at Jefferson Medical College is seeking applicants for a faculty position at the **ASSISTANT PROFESSOR** level. Candidates with research interests in molecular biology and drug metabolism preferred. The successful candidate will have a Ph.D. (or equivalent) degree, and will be expected to develop an independently funded research program, to supervise a bioanalytical laboratory, and to lecture on pharmacokinetics and related pharmacological methods. Divisional facilities include well equipped laboratories and a clinical research unit.

Submit curriculum vitae, summary statement of research interests, and names of three references to: **Dr. Thorir D. Bjornsson, Division of Clinical Pharmacology, Department of Medicine, 1100 Walnut Street, Thomas Jefferson University, Philadelphia, PA 19107-5563.**

An Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR
NON-TENURE-TRACK
Department of Microbiology and Immunology
Virginia Commonwealth University

An individual is sought to work in the area of tumor immunology and immunotherapy research. Experience with animal models and/or clinical immunotherapy trials required. Development of an independent research program in T lymphocyte biology is expected. Applicants must hold a Ph.D. or equivalent degree and have at least two years of productive postdoctoral experience. Candidates should submit a cover letter referencing position F6129, a curriculum vitae, and the names and addresses of three references by 1 August 1995 to: **Dr. F. L. Macrina, Box 980678 MCV, Richmond, VA 23298-0678.** *Virginia Commonwealth University is a culturally diverse, Equal Opportunity/Affirmative Action Employer. Women, minorities, and persons with disabilities are encouraged to apply.*

INSTITUTE OF MOLECULAR BIOLOGY
ACADEMIA SINICA, TAIWAN, ROC

Tenure-track positions for **PRINCIPAL INVESTIGATORS** are open for outstanding individuals to head independent laboratories in an expanding, stimulating research institute. Scientists with a Ph.D. degree and at least two years of postdoctoral experience in molecular cell biology and biochemistry are encouraged to apply. Although people who work on genetics and development, and on cellular signal transduction, are of particular interest to the selection committee, individuals with demonstrated records of research accomplishments and scientific creativity in all areas of molecular genetics will be considered.

The Institute currently has 25 laboratories, and is well-funded by the Academia Sinica and the National Science Council. Successful candidates will be appointed at the Assistant, Associate, or Full Research Fellow level, and are expected to develop their own independent research programs as well as program projects with other research fellows in the Institute. They will also direct research by graduate students and postdoctoral fellows.

Deadline for application is July 20, 1995. First-round candidates will be selected by July 31, 1995. The interview process and final decision are expected to be completed by September 15, 1995.

Interested individuals should send curriculum vitae, a description of past research accomplishments and future research interests, and three letters of reference by July 20, 1995, to: **Director, Institute of Molecular Biology, Nankang, Taipei, Taiwan 11529 ROC. FAX: 886-2-788-4177.**

EAST TENNESSEE STATE UNIVERSITY
James H. Quillen College of Medicine

RESEARCH FACULTY–Position will be assisting in the research of the Chairman of Biochemistry. Program is on the role of isoprenoid metabolism in the regulation of cell growth. Current emphasis is on protein prenylation but are also interested in the regulation of cholesterol metabolism. Desired techniques include protein biochemistry (FPLC, SDS-PAGE, immunoprecipitation), cell biology (transfection, immunofluorescence) and molecular biology (preparation of constructs, site-directed mutagenesis). Qualifications: Ph.D. in Cell Biology/Biochemistry/Molecular Biology with at least three years of related experience. Position available October 1, 1995. Send curriculum vitae to: **Dr. Michael Sinensky, East Tennessee State University, P.O. Box 70581, Johnson City, TN 37614-0581.** *Affirmative Action/Equal Opportunity Employer.*

Biological Drug Discovery (New Leads Group)

Johnson & Johnson, with over $15 billion in sales, is the world's largest and most comprehensive manufacturer of health care products serving consumer, professional, diagnostic and pharmaceutical markets. The R. W. Johnson Pharmaceutical Research Institute conducts research and development in therapeutic areas including anti-infectives, CNS, dermatology, hematology/oncology, immunology/inflammation, and women's health for the Johnson & Johnson companies ... Cilag, Ortho-McNeil Pharmaceutical, Ortho Biotech and Ortho Dermatological.

We have immediate opportunities with the New Leads Group of the Drug Discovery Division at our Headquarters in CENTRAL NEW JERSEY for scientists who thrive in a dynamic team-oriented environment to design and implement novel screens for the discovery of novel pharmaceuticals.

Scientist/ Sr. Scientist

Requires a PhD in Biochemistry, Cell Biology, Molecular Biology or related discipline and 2+ years of broad experience involving biochemistry, biology and automation. Your background should include the design, execution and analysis of mechanism-based and automated biological assays. This laboratory-based position provides the opportunity to work in a multi-disciplinary setting in a variety of therapeutic areas designing and testing new biological assays to identify novel pharmaceuticals. **(Dept. 318)**

Associate Scientists/Senior Research Associates

The successful BS/MS candidates will have demonstrated a broad knowledge of state-of-the-art scientific principles and theories. In addition, he/she should have experience in the design, validation, and implementation of biological assays. **(Dept. 319)**

To apply, please forward a copy of your resume suitable for scanning and input into our state-of-the-art database (i.e., clean/clear, no graphics, and preferably unfolded) to: Dept. # indicated above for the position of your choice, Johnson & Johnson Recruiting, P. O. Box 16597, New Brunswick, NJ 08906-6597.

We are an equal opportunity employer and support diversity in the work place.

THE R W JOHNSON
PHARMACEUTICAL RESEARCH INSTITUTE
a Johnson & Johnson company

Pursuing Careers in Science, Engineering and Mathematics with a Disability

- Is your company interested in hiring people with disabilities who have a background in science, engineering or mathematics (SEM)? We maintain and distribute a list of organizations that realize the potential of this underutilized resource of qualified individuals.
- Do you need information on accommodating a worker with a disability, financial or legal issues?
- Would you be interested in inviting a disabled student, who is considering entering an SEM field, to your company to experience the opportunities and challenges first hand?
- Are you a person with a disability who is seeking employment in SEM? If so we will post your resume on the Internet.
- If you are in a science, engineering or mathematics (SEM) career, would you like the opportunity to be a mentor to a student with a disability interested in an SEM career?
- How can someone with a visual impairment use a computer?
- How can a person with limited use of their hands enter an SEM career?
- How can you use and fund assistive technology in the laboratory, office or classroom?

PURSUIT can offer assistance with these questions and many more. **PURSUIT** seeks to understand the causes of underrepresentation of people with disabilities in science, engineering and math careers and to increase their representation and valuable contributions. **PURSUIT** provides information dissemination through workshops, a web server and resource manual. A major activity of **PURSUIT** is to develop relationships between students with disabilities and career scientist, engineers and mathematicians.

To find out more contact **PURSUIT** or look for us on the Internet.

PURSUIT
PURSUING CAREERS IN ENGINEERING, SCIENCE & MATHEMATICS

Project PURSUIT
University of Illinois at Urbana-Champaign
1-800-367-1736 (voice/TDD)
e-mail: Pursuit@uiuc.edu
HTTP://pursuit.rehab.uiuc.edu

POSTDOCTORAL POSITIONS

National Institutes of Health
National Center for Human Genome Research
National Institute of Neurological Disease and Stroke

Postdoctoral research positions are immediately available for individuals interested in joining a multidisciplinary team from the NCHGR and NINDS investigating the molecular basis of Niemann-Pick type C Disorder.

Dr. Danilo A. Tagle, NCHGR and Dr. Eugene Carstea, NINDS:
Positional cloning strategies.

Dr. Melissa Rosenfeld, NCHGR:
YAC complementation cloning.

Dr. William Pavan, NCHGR:
Murine NPC model.

Candidates should hold a MD and/or PhD and have less than 5 years postdoctoral experience. *Please send a CV with bibliography, statement of research interests and the name of 3 references by* ***July 28, 1995*** *to:*

NPC Search, NCHGR/NIH
Building 49, Room 3A14
49 Convent Drive MSC 4470
Bethesda, MD 20892-4470
Fax: 301-402-4929

NIH is an Equal Opportunity Employer

Associate Director
Scientific Computational Support
Cornell University Theory Center

The Cornell University Theory Center invites applications for the position of Associate Director for Scientific Computational Support. The Center provides a national focal point for high performance computing to solve scientific, engineering, and industrial problems.

The Associate Director leads computing professionals in providing education, training, academic outreach, consulting, and software support to a national community. To that end, the Associate Director provides innovative leadership in the use of education and training technologies and concepts, and participates in long-range planning for the Center as a whole.

The successful candidate will have a Master's degree (a Ph.D. is preferred) in the sciences, computer science, or engineering, plus 8-10 years of relevant experience creating and overseeing scientific projects and programs and directing a technical staff. Understanding of scientific research on leading-edge scalable parallel computers, including hardware, software, languages, and application design is required. Broad knowledge of the issues that arise in an interdisciplinary research center and a demonstrated ability to work with scientists throughout the nation is necessary. Excellent technical, interpersonal, written and oral skills and the ability to thrive in a dynamic environment are essential.

For additional information about the Theory Center, please refer to our world wide web home page located at: http://www.tc.cornell.edu/

For consideration, send cover letter and resume to Julia Addy, Cornell Theory Center, Frank H.T. Rhodes Hall, Cornell University, Ithaca, NY 14853-3801

Proof of citizenship or a permanent immigration visa will be required at time of employment.

Cornell University is an equal opportunity/affirmative action employer

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TOXICOLOGY STUDY DIRECTORS

Wyeth-Ayerst Research is a major division of American Home Products Corporation, which is one of the world's top three companies in the sales of prescription pharmaceuticals. We are a research intensive company committed to the development of safe and efficacious drugs for treating or preventing serious health problems.

We presently have 2 openings for **Toxicology Study Directors** in our Drug Safety and Metabolism Division located in our newly expanded facilities in Chazy, NY. Responsibilities include planning, directing and interpreting safety studies on new drug candidates as a GLP Study Director for those studies. Additionally, you will represent the Drug Safety and Metabolism Division on international project teams and coordinate the teams' communications with drug safety and metabolism. You will also be responsible for guiding, coordinating, and preparing the technical content of regulatory documents, and will participate in multidisciplinary reviews of development of new drug candidates.

Qualifications include a doctoral degree in Toxicology, Pharmacology or related field and at least 5 years of GLP laboratory experience in mammalian toxicology. Excellent written and oral communication skills are essential. A background in the pharmaceutical industry or relevant contract laboratory experience is preferred, while project management experience is desirable.

We are located in the scenic Adirondack Mountains-Lake Champlain region of New York state, just a short distance from Burlington, Vermont; Montreal, Quebec; and the Lake Placid/Olympic region. We offer a competitive salary and full range of employee benefits, as well as the scientific challenge of contributing to a healthier world. If you meet the qualifications and wish to be considered for our research team, please send your resume to: **Mr. Gary Wagoner, Human Resources Department, Job #C1223-SOT, P. O. Box 150, Chazy, NY 12921.** Or, you may fax your resume directly into our centralized research database at (610) 989-4854. Principals only. An Equal Opportunity Employer M/F/D/V.

WYETH AYERST™

Leading The Way for a Healthier World

CALYDON

CALYDON, Inc., of Palo Alto, CA is an early phase biopharmaceutical company developing gene therapeutics for cancer. We are seeking a

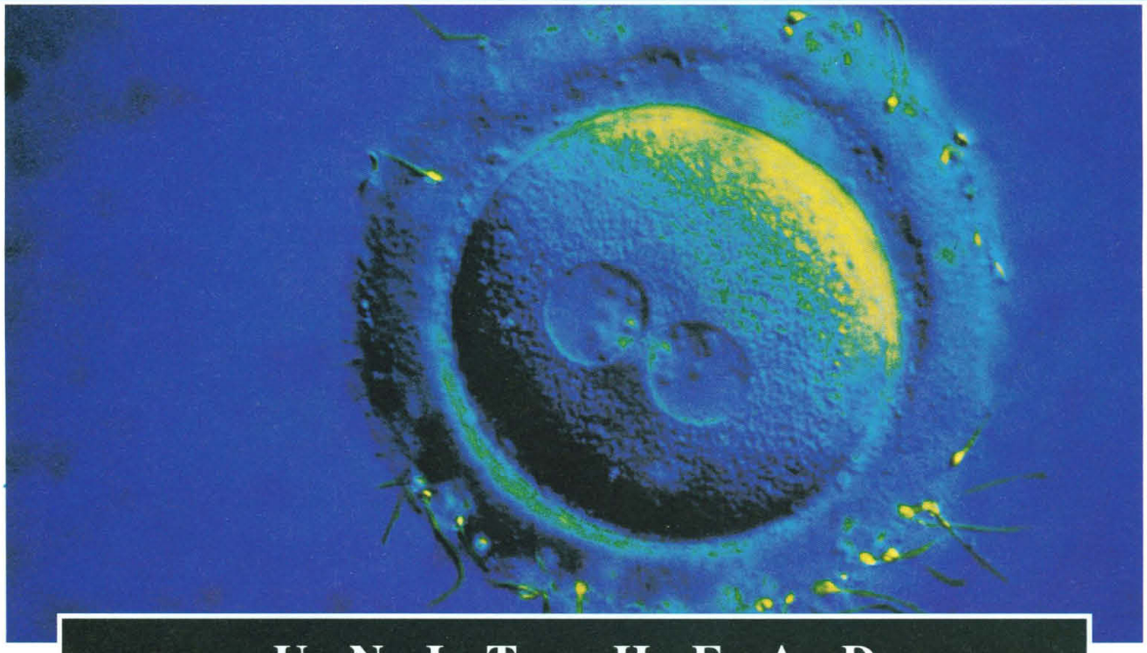
Ph.D. Molecular Biologist

with experience in transcription factor biology and/or animal virology. Highly motivated individuals who are facile in DNA cloning, gene expression, analysis of DNA-protein interactions, tissue culture models, and animal models are encouraged to apply. Knowledge of gene therapy and cancer will be helpful.

Calydon offers exciting research opportunities, competitive salaries and benefits, new laboratory facilities, and a collegial environment. Send your CV to:

CALYDON, P.O. Box 3667, Stanford, CA. 94305

The Beginning of a New Era in your Career



UNIT HEAD

REPRODUCTIVE TOXICOLOGY

Zeneca Pharmaceuticals is a leading part of a UK based bioscience company with a commitment to innovation and the production of solutions to world health problems, resulting in an enviable portfolio of cardiovascular, oncology, anti-infective and anaesthetic products.

Our philosophy, even within these changing times within the pharmaceutical industry is to continually focus and invest in R & D. Our full development pipeline of new and exciting compounds bears testimony to that approach. Our culture is to encourage our scientists to break new barriers - to be bold, imaginative, caring and responsible, all of which are essential ingredients to this senior position.

The Reproductive Toxicology Unit comprises a team of 15 dedicated professional staff engaged in conducting studies on reproductive function and developmental toxicity to support the selection and development of novel drugs, worldwide.

Providing the leadership, impetus and scientific direction for the Unit, you will be responsible for ensuring the attainment of our business objectives in this field. Integral to this will be the provision of overall data interpretation, perspective on all aspects of the science, and the development of new methods and ideas that enhance study quality and productivity.

An articulate individual who enjoys a challenging environment, you will have a post graduate qualification or equivalent in toxicology, and several years experience in Reproductive Toxicology, together with an in-depth knowledge of international regulatory guidelines and up to date understanding of processes and procedures. Equally vital will be your influencing and communication skills and your managerial flair in harnessing the talents of your team.

Salary, which will not be a limiting factor in making a successful appointment, will reflect your experience, qualifications and the status of this position and forms part of a comprehensive benefits package which includes relocation assistance, where appropriate, to the heart of beautiful Cheshire in the North West of England. Moreover, through achievement, your sights should be set on career development to senior management level.

Please write with a comprehensive CV quoting Ref. SOM/FR to the Personnel Officer, ZENECA Pharmaceuticals, Mereside, Alderley Park, Macclesfield, Cheshire SK10 4TG, England.

ZENECA Pharmaceuticals

BRINGING HEALTH TO LIFE

National Cancer Institute / National Institutes of Health / Public Health Service

CANCER PREVENTION FELLOWSHIP PROGRAM

The Division of Cancer Prevention and Control (DCPC), NCI, is accepting applications for the Cancer Prevention Fellowship Program (CPF). The purpose of this program is to train individuals from a multiplicity of health science disciplines in the field of cancer prevention and control. The program provides for: *Master of Public Health training* (at accredited university programs); *Participation in the DCPC Cancer Prevention and Control Academic Summer Course* (open to physicians and scientists interested in learning the principles and practice of cancer prevention and control); *Working at DCPC directly with individual preceptors* on cancer prevention and control projects; *Brief field assignments* in cancer prevention and control programs at other institutions. Funding permitting, Fellows will be accepted for up to three years of training, beginning July 1, 1996. Benefits include selected relocation and travel expenses, paid federal holidays, and participatory health insurance.

Eligibility

M.D., D.D.S., or D.O. from a U.S., territorial, or Canadian Medical School. Foreign medical graduates must have current USMLE or ECFMG certification and appropriate experience, e.g., one year residency in a training program approved by the Accreditation Council for Graduate Medical Education.

Or

Ph.D. or other doctoral degree in a related discipline (epidemiology, biostatistics, and the biomedical, nutritional, public health or behavioral sciences). Foreign education must be comparable to that received in accredited U.S., territorial, or Canadian institutions.

Plus

The applicant must be a U.S. citizen or resident alien eligible for citizenship within four years.

For details and an application catalog either call, fax or send a postcard or letter with your name, home address, and where you heard about the program to:

Douglas L. Weed, M.D., M.P.H., Ph.D., Director
Cancer Prevention Fellowship Program
Division of Cancer Prevention and Control
National Cancer Institute
Executive Plaza South, Suite T-41
6130 EXECUTIVE BLVD MSC 7105
BETHESDA MD 20892-7105

Further Inquiries: Mrs. Barbara Redding - tel: (301) 496-8640; fax: (301) 402-4863; email REDDINGB@dcpceps.nci.nih.gov

DEADLINE FOR RECEIPT OF APPLICATIONS: SEPTEMBER 1, 1995

NIH is an Equal Opportunity Employer

Faculty Opening

Doctor of Physical Therapy Program

Tenure track position available beginning August 1995. Faculty rank negotiable.

Responsibilities include:

- teaching graduate basic science courses which may include: histology, physiology, pathology, and embryology.
- participating in and supervising student research
- participating in clinical practice, if a licensed physical therapist
- active involvement in independent research.

Ph.D. in biological or related science required. Preference may be given to an individual with experience in the medical sciences. Slippery Rock University is building a diverse academic community and encourages minorities, women, veterans, and persons with disabilities to apply.

Slippery Rock University offers excellent salaries, a comprehensive fringe benefit package, and two retirement programs. Faculty are well supported in their professional travel activities.

Send letter of application, resume, transcripts, and three (3) letters of recommendation to:

Dr. Andrea B. Taylor, Search Chairperson
The School of Physical Therapy
Slippery Rock University
Slippery Rock, PA 16057

Review of applications will begin August 4, 1995, and will continue until the position if filled.

Slippery Rock University is well known for its excellent School of Physical Therapy and for leadership in the profession by its graduates. Slippery Rock University is also noted for its research laboratory facilities providing learning and research opportunities for students and faculty in exercise physiology, cardiopulmonary rehabilitation, biomechanics and motor control and learning. State-of-the-art equipment includes a computerized metabolic cart, telemetry, electrocardiographic and respiratory equipment, the Peak performance system, computerized force platform, Bassin anticipation timers and liner movement apparatus.

In addition, the School of Physical Therapy offers a state-of-the-art computerized microscopic visual imaging and mapping system (Neurolucida), a morphometric video-imaging system, limited animal facilities, and histology and neuroanatomy laboratories. Start-up funds and research laboratory space is available.

Slippery Rock University of Pennsylvania is a member of the Pennsylvania State System of Higher Education and an Affirmative Action/Equal Opportunity Employer.

United States Department of Agriculture

Cooperative State Research, Education, and Extension Service (CSREES)

Administrator, CSREES, Washington, DC

USDA is seeking to fill the position of agency Administrator for the Cooperative State Research, Education, and Extension Service. As Administrator, the incumbent is responsible for working with partners and customers to advance research, extension, and higher education in the food and agricultural sciences and related environmental and human sciences to benefit people, communities, and the Nation. Programs under the direction of the incumbent are financed by approximately $980 million in Federal funds and accomplished through the efforts of approximately 400 CSREES employees. The incumbent reports directly to the Under Secretary, Research, Education, and Economics and has frequent contacts with top officials of USDA, other government agencies, cooperative extension services, state agricultural experiment stations, colleges and universities, private organizations and corporations, national and international institutions, Departments and Ministries of Agriculture in other nations, and members of Congress and their staffs.

This is a Senior Executive Service position. Salary ranges from $97K to $122K (including locality pay), commensurate with experience. A Ph.D. in a discipline related to the position is highly desirable. For information on the position, call Dr. Floyd Horn on 202-720-8885; for vacancy announcement/applications procedures, call Gwen Donovan on 301-344-4622 by July 7,1995.

PHARMACIA BIOTECH INC., one of the foremost suppliers of instrumentation and consumables to the biotechnology industry, and PHARMACIA BIOTECH REAGENTS DIVISION INC., a leader in the research, production and marketing of molecular and cell biology products, attribute our success to the uniqueness and diversity of our workforce. To help us continue our success, we seek professionals in the following areas:

SALES REPRESENTATIVES

To develop, promote and manage products within an assigned territory. Responsible for demonstration of products to customers and the gathering of information on competitive products. Qualified candidates must possess a B.S. degree in a Life Science and direct laboratory experience utilizing techniques and instrumentation related to biotechnology. **DEPT. SR**

APPLICATIONS SPECIALIST

Provide technical sales support by demonstrating and installing products and instruments. Develop and facilitate technical presentations at customer sites and external meetings. Provide customer support including troubleshooting and problem solving. Qualified candidates must possess a Ph.D. in a Life Science with excellent verbal and written communication skills. **DEPT. AS**

SERVICE SUPPORT SPECIALIST

Interact and coordinate with internal customer and service support departments to provide sales and service support. Identify and troubleshoot equipment operation and maintenance problems in a timely and effective manner. The successful candidate will have a B.S. in a Life Science with additional direct experience with instrument repair and P.C. knowledge. **DEPT. SSS**

For the above positions please send resumes to:
Staffing Department
Pharmacia Biotech Inc.
800 Centennial Avenue
Piscataway, NJ 08854

RESEARCH/DEVELOPMENT & PRODUCTION OPPORTUNITIES

Opportunities exist in Research/Development and Production for individuals interested in developing new kits and reagents for molecular and cell biology products, as well as purification of restriction nucleic acid modifying enzymes, using a variety of protein purification techniques; production of molecular biology reagents by chemical and enzymatic methods; performing the quality control of molecular biology reagents. Candidates must possess a BS/MS degree in Chemistry, Biochemistry, Molecular Biology, or Biology. In addition previous experience is required working in a laboratory or an industrial setting, using modern molecular biology techniques and practical experience in immunology, cell culture, DNA cloning, and DNA sequencing. **DEPT. RDP**

For the above positions please send resumes to:
Staffing Department
Pharmacia Biotech
Reagents Division Inc.
2202 N. Bartlett Avenue
Milwaukee, WI 53202

We are proud to be co-sponsors of the Pharmacia Biotech & Science Prize for Young Scientists.

Pharmacia Biotech

Equal Opportunity Employer M/F/D/V

Genelabs Technologies, Inc. is a global biopharmaceutical and diagnostics company focused on viral and immunological disorders. We provide an exciting and entrepreneurial environment where you are encouraged to reach your full potential.

Project Manager
-DNA Binding-

In this high profile role, you will be responsible for managing the core research for our DNA Binding Project. More specifically, you will reach the strategic goals set for the project, lead it to high productivity levels, maintain a high morale, in addition to being directly involved in business collaborations. To qualify, you must possess a PhD in the Life Sciences or Chemistry coupled with at least 5 years of industry experience including management experience with highly skilled scientists and research associates in the area of gene-targeted pharmaceuticals. Scientific achievement and recognition, as well as a strong interest in molecular biology as it pertains to pharmaceutical research are critical. A solid background in structural biology is desired. Excellent written/verbal communication, interpersonal and public speaking skills are imperative.

Genelabs Technologies, Inc. has an excellent compensation program including our medical and dental program, stock plans, 401(k), 125(k), tuition reimbursements, bonus program, and much more. Please send your resume to: Genelabs Technologies, Inc., Human Resources, 505 Penobscot Drive, Redwood City, CA 94063, or FAX (415) 368-0709. Equal Opportunity Employer.

GENELABS
TECHNOLOGIES, INC.

SENIOR SCIENTIST
(Bioprocess Purification)

For over 118 years, scientists at Eli Lilly and Company have been developing novel, high-quality pharmaceutical products. With a current yearly investment of approx. $840 million in R&D programs, our continued success in reducing the time required to get new drug candidates to market requires the finest scientific talent available.

We seek a Senior Scientist with a PhD and a strong academic background and/or research experience in chemistry, biochemistry, microbiology and/or engineering for a challenging role in a bioprocess purification development area. An interest in isolation and purification of natural products from complex fermentations is required. Bioprocess purification techniques include the use of filtration, centrifugation, chromatographic separations and product isolation.

The successful candidate will work in a multi-disciplinary team environment, interacting with microbiologists, biochemists, chemists, engineers, and toxicology, medical, regulatory and production personnel. The scientist will conduct an active laboratory program to rapidly develop purification processes to produce new candidate drug products for toxicology and clinical trial studies. Responsibilities will include implementation of these processes into pilot-scale and production-scale operations.

Qualified candidates should submit a letter of application along with their curriculum vitae to: Ms. Sally Runyon, Corporate Recruitment SC/623, Eli Lilly and Company, Lilly Corporate Center, Indianapolis, IN 46285.

Eli Lilly and Company is an equal opportunity employer committed to diversity in the workplace.

Lilly

Postdoc Fellow

We have a challenging postdoctoral position immediately available. Successful candidate will study the genetics and biochemistry of a newly discovered family of signaling proteins. The MAGUKS (Membrane Associated GUanylate Kinase homologues) are believed to modulate membrane cytoskeleton, signaling pathways, intercellular junctions, and cellular proliferation. Applicants with a recent Ph.D. or M.D. are encouraged to apply.

St. Elizabeth's, a 454-bed, Tufts-affiliated tertiary care hospital, is just minutes from downtown Boston. Here you'll enjoy a competitive salary and benefits package, including health and dental insurance, tuition reimbursement, a smoke-free environment, an on-site child care center, and convenient, on-site parking. Benefits pro-rated for eligible part-time employees. Please send curriculum vitae and names of references to: ***Dr. Athar H. Chishti, Department of Biomedical Research, St. Elizabeth's Medical Center, 736 Cambridge Street, Boston, MA 02135; fax (617) 789-3111.*** An Equal Opportunity Employer.

St. Elizabeth's Medical Center

of Boston

Caritas Christi • A Catholic Health Care System • Member
A University Medical Center of Tufts University School of Medicine

Bioscience Products Group

Molecular Biologist

Hewlett-Packard's Bioscience Products Group located in Palo Alto, California, is at the forefront of science and technology. We have an opening for a Molecular Biologist.

This position will conduct research using the latest molecular biology techniques in the creation and development of DNA-based medical diagnostic assays.

Requires a PhD in Molecular Biology with 3 years' industrial experience. Experience in nucleic acid manipulations such as ligation, amplification, cloning, probe design, transfection, library construction, and site-directed mutagenesis is a must. Instrumentation experience such as quantitative PCR and human genome project analysis is highly desired. Familiarity with gene discovery and medical applications a plus.

To apply for this **Palo Alto, California opening**, please reference Ad #1960 and e-mail your resume to: **elaine_yamani@hp2200.desk.hp.com** Hewlett-Packard Company is an equal opportunity employer dedicated to affirmative action and work force diversity.

HEWLETT® PACKARD

Bioscience and Biotechnology

ASSISTANT PROFESSORS

Drexel University's Department of Bioscience and Biotechnology invites applications for two tenure-track and one visiting position from candidates with a Ph.D. and two years of post-doctoral experience. The specific areas for which September 1995 openings are anticipated follow:

CELL BIOLOGIST. Teaching responsibilities will include core courses in cellular physiology and molecular genetics at undergraduate levels.

ECOLOGIST. Under-represented areas in the department include population ecology, animal behavior, plant ecology, and invertebrate biology. Teaching responsibilities would be undergraduate ecology, environmental biology and upper level courses in all areas of expertise.

MICROBIAL GENETICS. The applicants will use molecular and genetic approaches to study fundamental properties of prokaryotes or lower eukaryotes, interests could include food microbiology; should possess a Ph.D. in Microbiology or a related field.

Appointments will be at the assistant professor level. Successful candidates will be expected to have a keen interest in innovative undergraduate instruction, to establish extramurally-funded research programs and to supervise student research at the undergraduate, masters and doctoral levels. The positions offer start-up monies over a three-year period. Applications will be reviewed if received by July 21, 1995.

Applicants should send a statement of professional interest, curriculum vitae and the names of three references to: **Ms. Sheila Hall, Secretary to Search Committee, Department of Bioscience and Biotechnology, Drexel University, 32nd and Chestnut Streets, Philadelphia, PA 19104. FAX: (215) 895-1273.**

DREXEL UNIVERSITY

Drexel University is an EO/AAE and actively seeks applications from women and minorities.

HIPPLE IS HOPE

POSTDOCTORAL FELLOWSHIPS

The **Hipple Cancer Research Center** announces postdoctoral fellowships in two divisions.

- **Biological Response Modifiers**
  - *Head:* **Dr. Sohan L. Gupta**, Wallace Chair for Cancer Research
  - *Subject:* interferon mechanism of action on tumor cells
  - *Requirements:* Ph.D. in biochemistry or molecular biology, experience in working with nucleic acids and molecular biology techniques
  - *Subject:* human papilloma viruses and cervical carcinoma
  - *Requirements:* Ph.D. in biochemistry or microbiology/virology or related subject, experience in PCR and other molecular biology techniques
- **Biology of Cancer Metastasis**
  - *Head:* **Dr. Emilio Barberá**, Senior Cancer Scientist
  - *Subject:* the molecular and cellular mechanisms of metastasis
  - *Requirements:* Ph.D. in immunology, experience in T cell anergy and molecular biology methods

If you would like to join an ambitious and productive team, send your curriculum vitae and the names of at least three referees to:

Postdoctoral Search Committee
Hipple Cancer Research Center
4100 S. Kettering Blvd., Dept. A-100
Dayton, Ohio 45439-2092

The **Hipple Cancer Research Center** provides a creative work environment, is affiliated with area universities and hospitals and is supported by private philanthropy and NCI peer-reviewed grants and contracts.

St. Jude Children's Research Hospital

DEPARTMENT OF VIROLOGY AND MOLECULAR BIOLOGY

POSTDOCTORAL FELLOWSHIPS

The Department of Virology and Molecular Biology offers a highly interactive environment for postdoctoral research with a focus on virology and molecular biology. The research programs within the Department offer recent Ph.D. or M.D. graduates comprehensive training in a large variety of contemporary molecular and biochemical techniques as well as a sound foundation in virology. Outstanding laboratory facilities are housed in a new 220,000 sq. ft. research facility. SJCRH offers competitive salaries and fringe benefits. Current research programs within the Department include:

J. Victor Garcia:	HIV pathogenesis, retrovirus-mediated gene transfer, and human gene therapy.
R. Goohra:	Role of proto-oncogenes in decisions pertaining to self-renewal versus differentation in T-lymphocytic progenitor cells.
Yoshihiro Kawaoka:	Molecular pathogenesis and host range restriction of influenza virus.
Geoffrey Kitchingman:	Adenovirus vector construction; host response to adenovirus infection; identification of leukemia genes; analysis of minimal residual disease in children with leukemia.
Suk-Hee Lee:	Cell cycle (and damaged DNA-induced) regulation of eukaryotic DNA replication.
K. Gopal Murti:	Ultrastructure of cells, viruses and macromolecules. Role of adhesion molecules in cell-to-cell communication.
Randall J. Owens:	Molecular mechanisms of HIV entry and assembly in host cells.
Allen Portner:	The envelope proteins of paramyxoviruses: The role of protein structure and function in virus infectivity, pathogenesis, and immunity.
Cliona Rooney:	Cellular immunotherapy for virus diseases and cancer.
Clare E. Sample:	Epstein-Barr virus transcriptional regulatory proteins and B cell transformation.
Jeff Sample:	Regulation of Epstein-Barr virus gene expression and persistence in transforming infection.
John W. Sixbey:	Epstein-Barr virus-induced genomic instability.
Robert G. Webster:	Influenza - molecular basis of interspecies transmission: gene vaccines.

Applicants should submit a brief statement of research interests, curriculum vitae and the names of three references to: **Virology and Molecular Biology Fellowships, The Department of Virology and Molecular Biology, St. Jude Children's Research Hospital, 332 N. Lauderdale, Memphis, TN 38101.**

An Equal Opportunity/Affirmative Action Employer

Danny Thomas, Founder

St. Jude Children's Research Hospital

VACCINE PHARMACEUTICAL RESEARCH

Merck Research Laboratories is seeking highly motivated individuals to work on the characterization, stabilization, lyophilization and delivery of biological molecules such as proteins, nucleic acids and live viruses in support of both human vaccine development as well as research applications in gene therapy.

BIOENGINEER

The successful candidate will be involved in the design, development and scaleup of lyophilization cycles as well as the identification of stabilizers for biological molecules. Research topics will include the elucidation of mechanisms of vaccine inactivation during lyophilization and storage. A strong background in both biochemistry and physical sciences, chemical engineering or pharmaceutical technology is required. Industrial experience with lyophilization is desirable, but not essential. Candidates with either B.S. or M.S. degrees will be considered.

PHYSICAL BIOCHEMIST

The successful candidate will develop stable, analytically characterized and immunologically active formulations of Merck vaccines via internal programs and outside collaborations. Determination of the physical and chemical integrity of vaccine antigens during formulation processing and storage by treating vaccine antigens as chemical entities will be emphasized. Candidates should possess a strong background in the biochemical and biophysical analyses of proteins. Similarly, experience with the development and preparation of controlled release formulations and vaccine adjuvants is also desired, but not essential. Candidate should possess a B.S. or M.S. with relevant industrial experience, or a Ph.D. with 0-5 years experience.

POST DOCTORAL AND ENTRY-LEVEL Ph.D. POSITIONS are available to investigate the mechanism of uptake of DNA by cells and novel methods to enhance this process. Scientists with backgrounds in the physical chemistry of nucleic acids, the structure and function of viral fusion proteins, the cellular transport of macromolecules and the development of new drug delivery methods as well as related areas are all encouraged to apply. These positions are primarily research oriented and will require creative experimental activity on the part of the investigators.

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

Please send curriculum vitae with cover letter, transcripts and the names of three references to: **Personnel Manager, Ad #C-24, MRL Human Resources WP42-2, Merck Research Laboratories, P.O. Box 4, West Point, PA 19486.** EEO/AA/V Employer.

MERCK
Research Laboratories

Gene Medicines For Controllable Gene Therapy

GENEMEDICINE, INC. *is developing non-viral gene therapy products through corporate partnerships. We wish to appoint highly motivated and qualified professionals for the following key positions:*

Scientists- Gene Delivery

We seek accomplished pharmaceutical scientists to join the **GENEMEDICINE** team of researchers engaged in creating, characterizing and optimizing novel, non-viral gene delivery systems. Candidates should understand the biological challenges associated with different routes of administration (e.g. pulmonary, intravascular, intramuscular and intratumoral) and have successfully designed, formulated and scaled-up innovative delivery systems based upon lipids, peptides or polymers.

We also seek bioanalytical scientists and physical chemists experienced in characterizing the colloidal properties of particulate delivery systems, preferably non-viral gene delivery systems. These candidates should have demonstrated expertise in the physiochemical characterization of macromolecules.

Successful candidates will have worked within interdisciplinary teams, possess superior verbal and written communication skills and will have a Ph.D. with at least one year of post-doctoral experience or an M.S. with at least two years experience.

GENEMEDICINE, INC., offers career growth and highly competitive compensation packages. For confidential consideration please send a resume to: **GENEMEDICINE, INC., Attn: Human Resources, 8301 New Trails Drive, The Woodlands, TX 77381-4248, or fax to: (713) 364-0858.**

GENEMEDICINE, INC.

UCLA

The Division of Life Sciences in the College of Letters and Science at UCLA announces a search for a distinguished scholar and educator to assume the position of Chair of the new Department of Molecular, Cell and Developmental Biology. We are looking for a mid-career or senior-level scientist with a distinguished record of productivity, a strong desire to maintain an active and productive research program, and a commitment to undergraduate education. The faculty presently consists of 17 members, with strengths in all of the areas indicated in the name of the department, in both plant and animal systems. The new Chair will be expected to define and participate in expansion of this faculty over the next several years, coordinating with existing strengths in the Molecular Biology Institute, the Energy Department's Laboratory of Structural Biology and Molecular Medicine, and the basic sciences departments of the School of Medicine. The Division already has in place a strong administrative structure to assist the Chair in day-to-day operation of the new department, freeing him or her to maintain a strong research program and attend to academic matters. Individuals interested in this position should send their curriculum vita and the names of three potential references to: Chair, MCDB Search Committee, 2203 Life Sciences Building, University of California, Los Angeles, CA 90095-1606.

The University of California, Los Angeles, is an Affirmative Action/Equal Opportunity Employer. Women, minorities, and persons with disabilities are encouraged to apply.

TENURE-TRACK FACULTY POSITION ASSISTANT PROFESSOR

Crump Institute for Biological Imaging Department of Molecular and Medical Pharmacology UCLA School of Medicine

The Crump Institute for Biological Imaging is a new Institute at UCLA that is committed to the merger of imaging and modern biology to examine systems ranging from cellular subassemblies up to human subjects. The Institute and the Department of Molecular and Medical Pharmacology at UCLA are seeking a junior faculty member with interests in both synthesis and protein chemistry. The successful applicant will be expected to develop an independent research program with emphasis in radiolabeled proteins and other biochemical imaging probes for position emission tomography and confocal fluorescence microscopy. The individual we seek will also act as a member of a research consortium and should have the ability to interact with scientists of diverse interest who have come together to advance biology and medicine through the use of novel probes and bio-medical imaging modalities. The faculty includes scientist with strengths in chemistry, biochemistry, molecular biology, pharmacology, nuclear medicine, biophysics, and biomathematics.

Candidates should have a Ph.D. in Chemistry, Biochemistry, or a closely related field. Teaching of graduate and M.D./Ph.D. students is expected. Send curriculum vitae, a description of research plans and three letters of recommendation to: **David Tomita, Search Coordinator, Crump Institute for Biological Imaging, UCLA School of Medicine, 10833 Le Conte Avenue, Los Angeles, CA 90024-1735.**

AACR SPECIAL CONFERENCES IN CANCER RESEARCH

Cytokines and Cytokine Receptors

October 14-18, 1995
The Sagamore, Bolton Landing (Lake George), New York

Conference Chairpersons: Steven Gillis, Douglas E. Williams

SCIENTIFIC PROGRAM

Keynote Address: Joost J. Oppenheim; **Cytokines and Hematopoiesis:** Manfred R. Keller, Stewart D. Lyman, William P. Sheridan, Michael J.P. Lawman, Jonathan Drachman, Pamela Hunt, Connie J. Eaves, Katherine J. Turner; **Cytokines and Lymphopoiesis:** Michael I. Lotze, Serge LeBecque, David H. Lynch, Mary K. Kennedy, Teresa M. Foy, John A. Schmidt, **Cytokines and Infectious Disease/Cytokine Effects-Implications for Disease:** Steven A. Miles, Steven G. Reed, William E. Paul, Lawrence M. Lichtenstein, Tadamitsu Kishimoto; **Cytokine Receptors - Biological and Clinical Implications:** Marc Feldmann, Thomas A. Waldmann, Roy A. Black; **Cytokine Signal Transduction:** Glenn C. Rice, Thomas J. Schall, Klaus Pfizenmaier, Melanie K. Spriggs, David J. Pickup

Cancer: The Interface Between Basic and Applied Research

November 5-8, 1995
Stouffer Harborplace Hotel, Baltimore, MD

Conference Chairpersons: Bert Vogelstein, Stephen H. Friend, John D. Minna

SCIENTIFIC PROGRAM

Cell Cycle Intervention: David Beach, Joan Massague, Bert Vogelstein; **Gene Therapy and Immunotherapy:** Michael Blaese, David P. Carbone, Karl E. Hellström, Ira Pastan, Steven A. Rosenberg; **Molecular Diagnostics:** Albert de la Chapelle, Stephen H. Friend, Joe W. Gray, Alexander Kamb, Bruce A. J. Ponder, David Sidransky, Jeffrey Sklar; **Novel Drug Approaches:** Judah Folkman, Carol W. Greider, Frank McCormick, Allen I. Oliff, Jerry W. Shay; **Genetic Instability:** Kenneth W. Kinzler, Richard D. Kolodner, Jeffrey M. Trent; **Apoptosis in Malignancy:** David E. Housman, Tyler Jacks, Stanley J. Korsmeyer, **New Insights about Cancer Genes:** Eric R. Fearon, Curtis C. Harris, Wen-Hwa Lee, Arnold J. Levine, David M. Livingston, **Novel Cancer Genes:** Stephen B. Baylin, Donald S. Coffey, Andrew P. Feinberg, John D. Minna, Michael H. Wigler

The Molecular Basis of Gene Transcription

December 2-6, 1995
Hotel Del Coronado, San Diego, CA

Conference Chairperson: Tom Curran
Program Committee: Anjana Rao, Danny F. Reinberg

SCIENTIFIC PROGRAM
(Additional Speakers to be Announced)

Keynote Address: James E. Darnell; **Signaling:** Ronald M. Evans, Anjana Rao, Tom Curran; **Basic Mechanisms:** Danny F. Reinberg, Robert Tjian, Robert G. Roeder, Richard A. Young; **Structure:** Alanna Schepartz, Stephen K. Burley, Nikola P. Pavletich; **Higher Order Organization:** James T. Kadonaga, Nouria Hernandez; **Repression:** Jasper D. Rine, Frank J. Rauscher, III, Michael S. Levine; **Activation:** Bernard F. Mach, Robert N. Eisenman, Michael R. Green; **Cell Cycle:** Joseph R. Nevins, Brian Dynlacht

Information and Application Forms:

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Prior to application, further information (including current salary scales) should be obtained from the **Personnel Office, University College Dublin, Belfield, Dublin 4, Ireland** (quoting above reference number). Telephone enquiries: **(353 1) 706 1078** - direct line. Fax: **(353 1) 269 2472.**

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The Department of Zoology has 18 academic staff and 19 support staff, a large undergraduate enrolment and a postgraduate enrolment of approximately 120. Research interests include aquaculture, behavioural ecology, comparative physiology, conservation biology, coral reef biology, cytology, developmental biology, genetics, reproductive biology, systematics and evolutionary biology, terrestrial and marine ecology, toxinology and vertebrate palaeontology. The Department is a strong partner in the University's Centre for Conservation Biology and the School of Marine Science. More details about the Department and the University may be obtained by writing to Professor Gordon Grigg, Department of Zoology, facsimile +61-7-365-1655.

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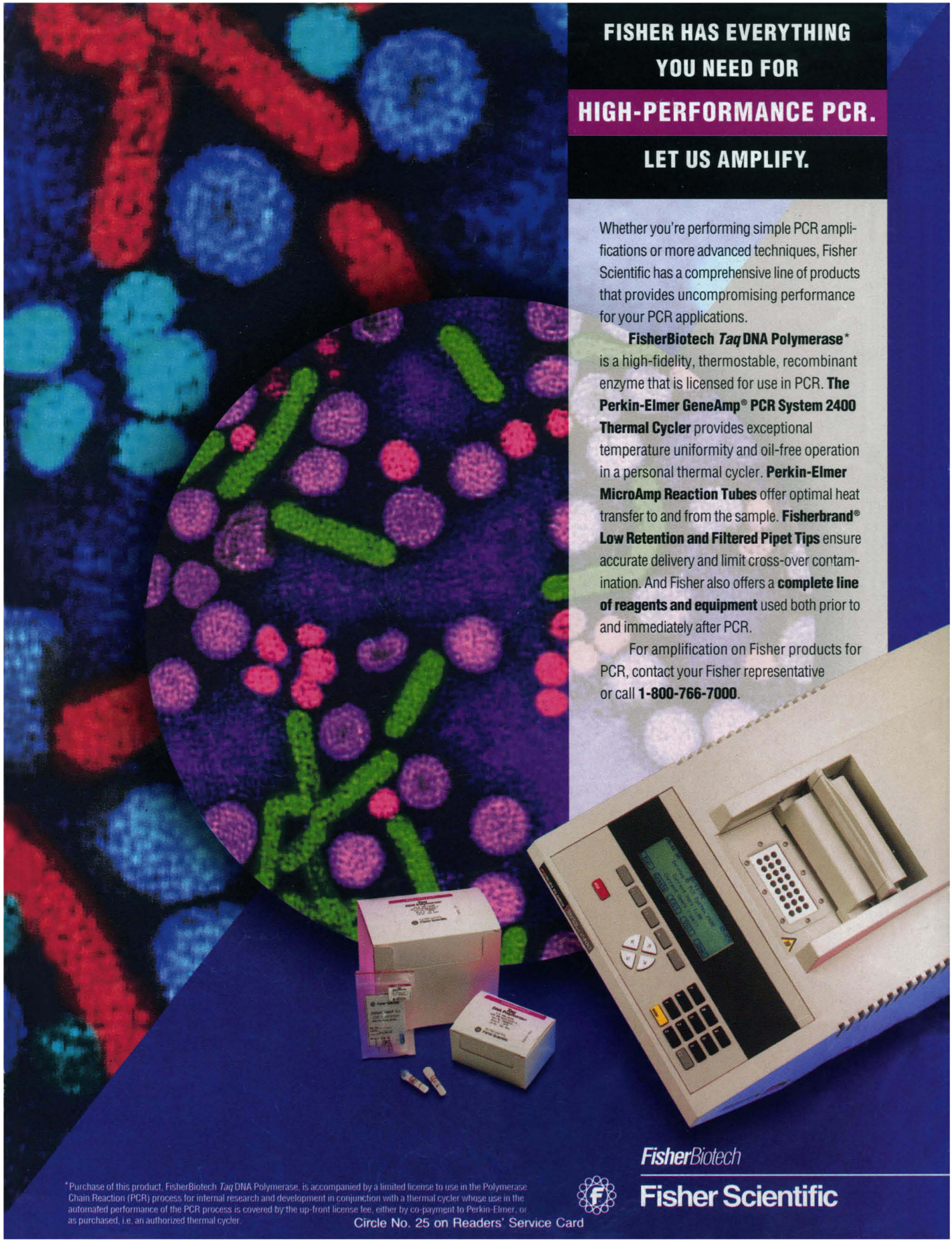

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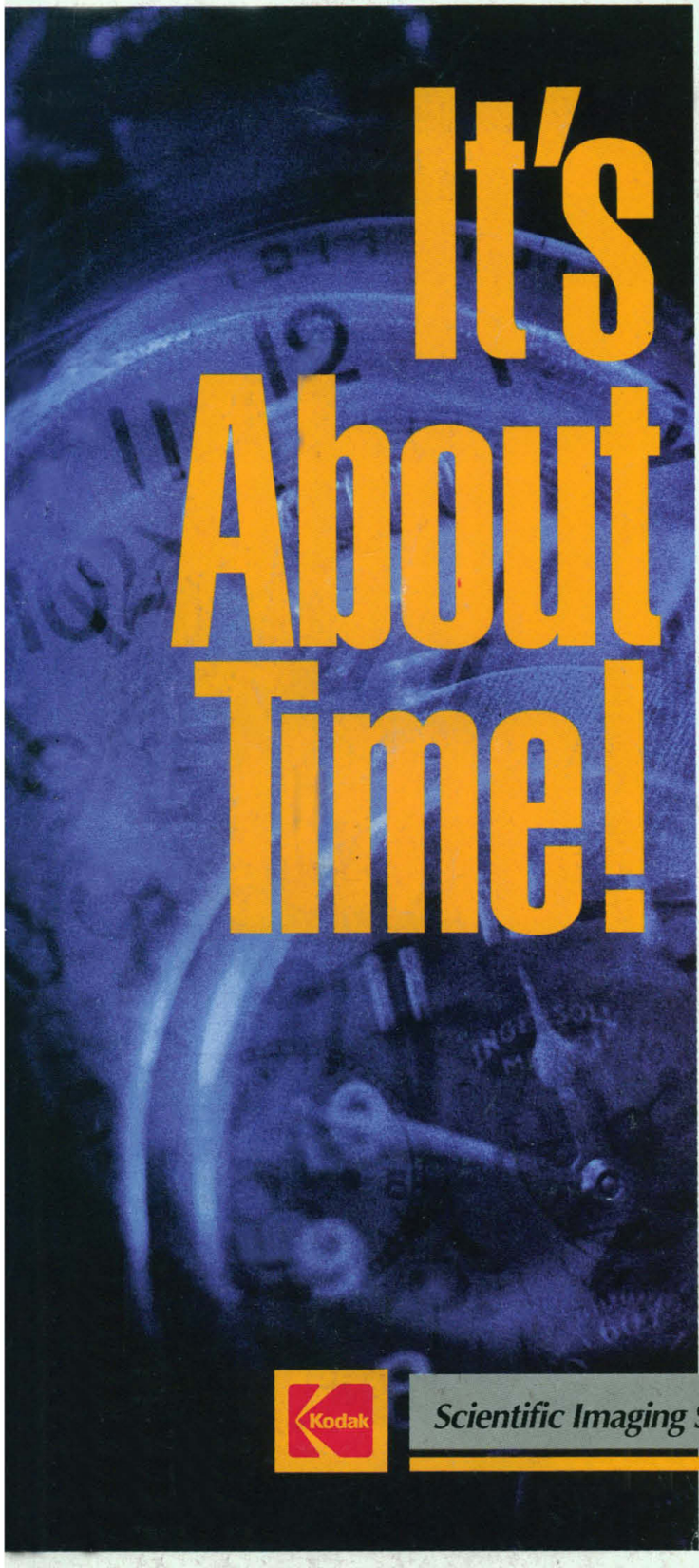

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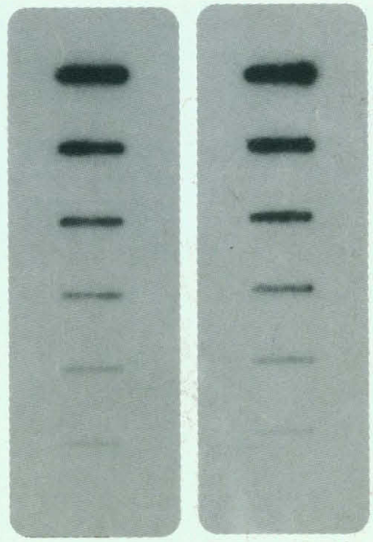

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