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Science presents a largely white face to the world. In this issue, a special news section beginning on page 1089 reviews attempts to add color to that face. By creating job opportunities in academia and industry, and by becoming scientific policy-makers, minority scientists are making some inroads. But obstacles such as a lack of role models, economic hard times, and some cultural values held by both majority and minority groups are strewn across a far-from-finished canvas.

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**Minorities in Science**

This issue of *Science* returns to a theme that was explored last year (Science, 13 November 1992): the status of, and opportunities for, minorities in research. This area has become so clouded by high emotion involving charges of racism, political correctness, and reverse discrimination that some calm objectivity is greatly needed. The ultimate goal in a democracy should be a color-free evaluation of ability in a profession and equal opportunity for all young people starting careers. Such a goal is essential to a society that must mobilize its best brains to compete in the global economy and maintain a decent environment and standard of living in an incredibly crowded world. This issue of *Science*, edited by Elizabeth Culotta with support from our news staff, helps provide an overview of advancements to that goal.

As de Tocqueville said long ago, "The public will believe a simple lie in preference to a complicated truth," and that, unfortunately, is frequently true in emotionally charged areas. Word usage is important for objectivity and the word "underrepresented" causes some ambiguity because it is used by different individuals in different ways. A precise usage requires relation to some base, such as percentage relative to (i) the population, (ii) those entering college, (iii) those getting good grades in college, (iv) those doing well in graduate school, or (v) those applying for jobs in the academic community or industry.

If a minority is underrepresented in category (i), there may be a pipeline problem where the solution requires encouragement of those individuals who have the talent to enter the profession and the message that discrimination is no longer tolerated. If a minority is underrepresented in category (iv), that may well reflect prejudice or a mentoring problem. All students going through the successive competitions of high school, college, graduate school, and job-seeking have fears and anxieties as the competition gets tougher. The failure of good mentoring for minorities, who frequently have fewer role models, can cause talented minority members to give up when they are being subjected to the normal hurdles of competition. As this issue of *Science* illustrates, mentors can span racial lines, but affirmative action programs correctly promote the view that diversity of faculty members is desirable to provide symbols of success and mentors for minority students who might otherwise be uncomfortable expressing their inner stresses.

There are increasing numbers of minority members on faculties and in industry. The process must continue, because there is a time delay before increasing opportunities become known in a community. To demand instant success is unfair and encourages some who cry "racism" much too quickly when the real problem is a pipeline problem and others who cite a failure to reach goals as evidence that a minority is unable or unwilling to live up to high standards. The effort has to be more of a marathon than a sprint, because there must be examples of success that then encourage those who need role models. The incredible success of Asian Americans in terms of their grades in school and acceptances to graduate school means that they are clearly underrepresented, at the moment, among faculty, but that gap is rapidly being closed and the future may provide good evidence that society genuinely wishes to broaden the base from which talent is solicited. Among blacks and Hispanic Americans the pipeline has been more of a problem, but there is evidence that an increasing number of talented individuals from these groups are adding their abilities to the science community. All scientists must aid in this process, encouraging those who have talent in science to go on in that area and guiding those who have talents in other fields to fulfill themselves in appropriate careers. For example, the job and grant situation in academic science is daunting at this time for all scientists. An able individual who does not quite have the knack for doing research might be an excellent M.D. or patent lawyer, both needed professions. Good mentoring will be a step to cure underrepresentation in all areas and will also produce more happy individuals who will in turn encourage the next generation. If we eventually get to a color-blind society, it is to be hoped that science will lead the way and provide the best program for how it can be done.

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AIDS Activism and the OAR

As the co-author of the report (1) that provided the framework for the expansion of the powers of the National Institutes of Health (NIH) Office of AIDS Research (OAR) in the NIH Revitalization Act of 1993 and one of the key individuals involved in advocating for the congressional approval of these provisions, I must take exception to Jon Cohen's revisionist elaboration of recent events ("Conflicting agendas shape NIH," Special News Report, 24 Sept., p. 1674).

First, the opposition of the directors of the NIH institutes to the plans to enhance the OAR's responsibilities and authorities was based on the first draft of the legislation. Subsequently, the director of the National Cancer Institute, Samuel Broder, worked with staff members in the Department of Health and Human Services and Senator Edward M. Kennedy's (D-MA) office to address the institute directors' concerns.

Second, there was, indeed, significant support among the extramural AIDS research community for the strengthening of the OAR, as embodied in the bill. Cohen recalls the opposition, but he does not mention the group of more than 200 AIDS researchers whose support was vital to the passage of the legislation.

Third, Cohen portrays AIDS activists as uniformly and strongly "in favor of targeted research," and while unstated, the presumption is, at the expense of investigator-initiated work. My organization issued a report (2) at the IXth International Conference on AIDS in Berlin this summer, of which I am the author, which belies Cohen's assertions. The report, the product of interviews with thirty leading scientists in basic research on AIDS, calls for an increase in investigator-initiated awards (ROIs) for AIDS, which have steadily decreased over the past several years. The report also calls into question the usefulness and feasibility of a massive directed research effort or "Manhattan Project" for AIDS.

AIDS activists have forged productive partnerships with many AIDS researchers. Our contributions, particularly in the area of clinical research on HIV infection, have been widely acknowledged. The polarization between the research community and people with HIV and their advocates has largely abated in recent years as we realize the common goals we share with scientists and the complexity of the scientific problems which AIDS presents.

Gregg Gonsalves
Treatment Action Group (TAG), 147 Second Avenue, Suite 601, New York, NY 10003

References


2. G. Gonsalves, "Basic research on HIV infection: A report from the front" (Treatment Action Group, Berlin, Germany, 1993).

Response: I agree with Gonsalves that the tension between AIDS activists and researchers is abating, and I did not mean to portray all AIDS activists as being strongly in favor of targeted research. But Gonsalves is omitting a key point I made in my article: Many breast cancer and AIDS activists are not trying to undermine basic research, but to better organize it. And indeed, when Gonsalves was lobbying for the OAR legislation, he—and yes, many AIDS researchers—argued for what TAG called "a meaningful long-range strategic plan" to "prioritize among critical scientific issues, evaluate current AIDS programs, suggest changes, and recommend necessary resource real-location or new programs." True, this is not calling for abolishing investigator-initiated research, but it is calling for targeting. And by definition, targeting clashes with unfettered basic research, and that is the source of the current tension between these activists and some researchers (including several institute directors).—Jon Cohen

Multiregional Evolution

Under Corrections and Clarifications of 17 September (p. 1508), it is noted that reference 4 in the article "Demic expansions and human evolution" by L. L. Cavalli-Sforza et al. (29 Jan., p. 639) was incorrect. The corrected reference is given as "F. Weidenreich, Evolution 1, 221 (1947); C. Coon, The Living Races of Man (Knopf, New York, 1965). . . ."

If only one of Coon's books were to be cited, the correct one would surely be The Origin of Races (1), not The Living Races of Man. The earlier work dealt explicitly and extensively with Coon's theories about the origin and evolution of what he considered to
be the living human races. In his introduction, Coon described his intellectual debt to Franz Weidenreich; in the bibliography 12 of Weidenreich's publications were cited, and the index listed 20 references to Weidenreich in the text or notes. Weidenreich is not referred to in the introduction, bibliography, or index of *The Living Races of Man*.

However, the references made by Cavalli-Sforza et al. to the work of Weidenreich are no more accurate as corrected. The concept of multiregional evolution (2) follows from, although it is not identical to, that which Weidenreich referred to as his polycentric theory of human origins. However, the Weidenreich paper cited by Cavalli-Sforza et al. (as corrected) did not deal with this subject. Of Weidenreich's publications that did treat the matter, the most readily available is his popular book *Apes, Giants, and Man* (3), which includes (figure 30, p. 30) Weidenreich's schematic diagram of hominid evolution that still is misrepresented by most later writers on the subject (4). However, the term "polycentric theory" was used as early as 1938 (6), and the concept of regional continuity in lineages reconstructed from fossil material occurred even earlier (5).

The corrected references also do nothing to dispel the substantively erroneous impression left by Cavalli-Sforza et al. that we, like Weidenreich, advocate a hypothesis of "parallel local evolution in many continents..." Coon did, but Weidenreich did not and we do not. The multiregional model, like Weidenreich's polycentric theory that preceded it, is designed to fit a substantial body of empirical evidence documenting continuity as well as differentiation among human populations distributed across wide reaches of time and space. Our working hypothesis is that these complex morphological patterns reflect underlying genetic phenomena that also were complex, involving amounts and patterns not only of gene flow (or migration in the terminology of Cavalli-Sforza et al.) but also of mutation, drift, and selection operating over hundreds of thousands of years. We are aware of prodigious amounts of data that are consistent with the multiregional hypothesis and none that require its rejection.

R. B. Eckhardt
Institute of Molecular Evolutionary Genetics, and Department of Exercise and Sport Science, Pennsylvania State University, University Park, PA 16802
M. H. Wolpoff
Department of Anthropology, University of Michigan, Ann Arbor, MI 48109–1382

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**References**


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**"Collaboratory" Principles**

William A. Wolf's Perspective on computer-based interpersonal communication systems (Computing in Science, 13 Aug., p. 854) omits important history preceding the "collaboratory" concept. In 1980, the National Aeronautics and Space Administration (NASA) demonstrated the ability of investigators to remotely operate a major scientific satellite (the International Ultraviolet Explorer) and to communicate with each other by electronic means. In 1985, NASA's Task Force on Scientific Uses of Space Station strongly supported the concept of "telescience" to enable ground-based investigators to collaborate with each other by electronic means in the use of space-station instruments and communications to space-based astronauts. NASA later studied telescience concepts with a group of universities, creating a network of individuals who developed software and modalities for collaboration groups. The Massachusetts Institute of Technology's "Investigator in a Box" was a product of this NASA telescience activity, as was the original concept of operating the National Science Foundation's Sondrestrom radar remotely with collaboration technologies. Thus, from a historical perspective, the principles of the "collaboratory" have been appreciated in practical form for more than a decade. Labels aside, such types of electronic group interactions are growing rapidly and offer a more profitable means of interaction for scientific research than is afforded by such electronic means as bulletin boards and electronic mail.
Support for Russian Science

Christopher Anderson's article "Russian science aid falls short" (News & Comment, 10 Sept., p. 1380) is critical of Western aid packages designed to support Russian scientists, but does not mention a highly successful Department of Energy (DOE) program that has overcome the barriers associated with "Western bureaucracy, FSU [former Soviet Union] politics, or the general chaos in the former communist lands."

The Office of Environmental Restoration and Waste Management (EM) established a cooperative program with Russia in 1990 to exchange knowledge, technologies, and information relating to environmental restoration and waste management activities. This program is conducted under the auspices of a Memorandum of Cooperation between DOE and the Ministry of Atomic Energy of the Russian Federation. Since the program's inception, EM has established 10 contracts totaling $300,000 with six Russian institutes. The contracts leverage U.S. resources by a factor of 50 to 1 and address critical needs in the areas of chemical separations, contaminant transport, and vitrification. An additional $300,000 has been spent subsidizing Russian scientists at U.S. national laboratories, universities, and international conferences.

This is not an assistance program. The DOE program effectively employs technical projects to identify and use key Russian technologies and scientists in support of DOE's cleanup mission. While assistance money is essential for the short-term survival of Russian scientists, it cannot sustain a market economy. The technical projects that make up this DOE program serve U.S. science and technology needs while providing Russian scientists with an opportunity for independent and sustained growth in the competitive world environmental market.

Clyde W. Frank
Acting Principal Deputy Assistant Secretary for Environmental Restoration and Waste Management, Department of Energy, Washington, DC 20585

Science readers may be interested in another effort to break through the Russian and Western bureaucratic and political thickets—an Entrepreneurial Training Workshop held in Moscow this past June for a group of scientists and managers from the Russian nuclear weapon design laboratories in the closed cities of Arzamas-16 and Chelyabinsk-70. Their livelihood is threatened by funding shortages and poor economic conditions, posing a considerable danger of nuclear proliferation and possibly compromising nuclear weapons safety in the former Soviet Union.

Sponsored by the U.S. Arms Control and Disarmament Agency (ACDA) and the U.S. Department of Energy in conjunction with the laboratories' parent agency, the Russian Ministry of Atomic Energy (MINATOM), this workshop brought together a group of Boston University and Harvard professors, venture capital investors, legal experts, scientists from the American nuclear weapon laboratories (who are themselves interested in a similar process of conversion from defense work), and nearly two dozen scientists and mid-level executives from the Aramas and Chelyabinsk laboratories. The workshop trained the Russian participants in the basics of market research, research and development capability assessment, product development, business plans, business organization, evaluation and protection of intellectual property rights, and funding plans. The participants developed several business plans (case studies) for possible defense conversion projects. If successfully implemented, they could be the basis for new business enterprises that could contribute to commercial economic development and job creation. Additional workshops have been requested by MINATOM.

These workshops are part of ACDA's contribution to U.S. efforts to promote conversion to civilian activity of the defense industry of the former Soviet Union. ACDA is exploring the possibility of further workshops in the former Soviet Union, along with other measures to help redirect nuclear weapon scientists and other defense industry personnel to economically viable civilian activities.

Thomas Graham Jr.
Acting Director, U.S. Arms Control and Disarmament Agency, Washington, DC 20510

Anderson's report on aid—or the lack of it—to Russian science deals principally with programs of governments and the Soros Foundation, but also mentions "the heroic—but tiny—initiatives of several scientific societies." I write just to say that the American Institute of Physics is among the supporters. We are sending several hundred free journal subscriptions to individual scientists in the former Soviet Union (and a few dozen to scientists in the former Eastern Bloc). We have also provided society memberships and computer equipment and copiers to editors of our partnership journals in Russia. The face value of our assistance to date is more than $500,000.

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Application Example: Activation of Reduced-Denatured Ribonuclease A by PDI

Reduced-denatured RNase and Scrambled RNase (randomly formed disulfide bonds) are activated by Protein Disulfide-isomerase (PDI).

<table>
<thead>
<tr>
<th>Refolding System</th>
<th>Final conc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substrate protein</td>
<td>200μg/ml</td>
</tr>
<tr>
<td>Sodium phosphate buffer, pH 7.5</td>
<td>100mM</td>
</tr>
<tr>
<td>Glutathione</td>
<td>0.2mM</td>
</tr>
<tr>
<td>Reduced glutathione</td>
<td>2mM</td>
</tr>
<tr>
<td>PDI</td>
<td>20μg/ml</td>
</tr>
</tbody>
</table>

Results

Reduced RNase

Scrambled RNase

Code No. 7318: 1mg/vial

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At Amgen, we are pursuing a stimulating scientific research environment, and offer strong support for interactions with peers in the academic community through collaborative relationships with universities. We provide a culture that actively encourages individual contributions and strongly supports a diversity of ideas.

Our drug discovery programs in Inflammation Research and Chemistry are looking for dedicated BS/MS/Ph.D-level scientific staff with expertise in biochemical and cell-based assay techniques. Qualified candidates will join a highly motivated, interdisciplinary team involved in the research and development of high throughput assays, quantitation of receptor-ligand interactions and screening of natural and synthetic libraries for the identification of potential therapeutic agents. Scientists will closely interact with researchers working in the areas of inflammation, autoimmunity, chemistry and structure-based design in the search for new drugs. We currently have opportunities for the following professionals in our Drug Discovery and Assay Development group:

**Molecular Biologists**
Qualified candidates should have a working knowledge of cDNA cloning techniques, PCR and directed mutagenesis. Cell culture experience is a plus.  *(Job Code OA-SC-RN-001)*

**Cell Biologists**
Qualified candidates must be able to isolate cells and platelets from human blood. Experience with cell activation, endothelial-leukocyte biology, cell adhesion or receptor biology is desired.  *(Job Code OA-SC-RN-002)*

**Biochemists**
Qualified candidates must be experienced in protein purification and characterization. A working knowledge of enzymology, receptor biochemistry or carbohydrate analysis is desired. Experience with ELISA and/or radioimmunoassays is a plus.  *(Job Code OA-SC-RN-003)*

**Biophysical Chemists**
Qualified candidates should have a good working knowledge of analytical biophysical techniques used for characterization of glycoproteins and enzymes (i.e., analytical ultracentrifugation, fluorescence spectroscopy, microcalorimetry, BLACore, TIRF and CD spectroscopy). Experience with computer data analysis is desired.  *(Job Code OA-SC-RN-004)*

At Amgen, our staff plays an integral role in maintaining the highest of standards and product excellence. We offer a highly competitive compensation and benefits package that includes a retirement and savings plan, medical/dental/life insurance plans, on-site fitness and child care facilities and three weeks vacation. If Amgen sounds like the right place for you, now is the right time to FAX/mail your resume and/or curriculum vitae to: FAX: (805) 447-1985, Amgen Inc., Staffing, Job Code (See Above), Amgen Center, Thousand Oaks, CA 91320-1789. Please, principals only. We are an Equal Opportunity Employer M/F/D/V.
In an ever changing world, innovation is our destination... teamwork is our way of getting there.

The R.W. Johnson Pharmaceutical Research Institute of Johnson & Johnson is rapidly becoming a worldwide leader in drug discovery... shortening the cycle times from discovery of compounds to the selection of candidates for new drug-development and being recognized for the quality of its regulatory submissions.

Scientific excellence is an essential ingredient of our success as today’s world health care leader. Our R&D customers—the Johnson & Johnson companies Cilag, Ortho-McNeil Pharmaceutical and Ortho Biotech, need information about the synthesis, physicochemical properties, metabolism, stability, medical efficacy, possible side effects and manufacture of potential drugs to ensure the speedy approval and ultimately to market their biotechnology-derived and traditional drugs.

But it is our people who will be the catalyst for tomorrow’s successes. Talented women and men from diverse backgrounds with the skills, desire and competitive spirit who can work closely together on the teams that will meet the challenges of this changing world.

If your career is pointed in our direction, you’ll want to consider the advantages of joining The R.W. Johnson Pharmaceutical Research Institute. We’re seeking entry through senior level candidates at several sites in the following fields:

Pharmacy, Biology, Biochemistry, Toxicology, Immunology, Chemistry, Biochemical Engineering, Pharmacology, Pathology, Microbiology and Statistics.

Interested applicants are invited to send their resume to:

R&D Careers—Department SC
R.W. Johnson Pharmaceutical Research Institute
P.O. Box 300, Raritan, NJ 08869-0602

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The fact is, whatever area of science you're interested in, whatever projects you wish to pursue, no one offers opportunity this diverse.

Argonne National Laboratory
Operated by the University of Chicago, this laboratory is one of the world's leading centers for research in parallel computing, environmental research, biological research, materials research, nuclear research and more. Argonne is also home to the Advanced Photon Source—the nation's brightest X-Ray source.

Brookhaven National Laboratory
From probing the nature of the atom, to unraveling the mysteries of DNA, research at this multi-program laboratory spans the breadth and width of scientific inquiry. Current projects include physical, biomedical and environmental sciences, as well as selected energy technologies.

Lawrence Berkeley Laboratory
This laboratory was initially established as a particle physics accelerator facility engaged in traditional research areas of physics, accelerators and nuclear science. Today, Lawrence Berkeley has diversified into advanced materials, chemical sciences, energy, and university partners, includes energy and environmental technologies, advanced materials, biotechnology, precision manufacturing, high-performance computing and more!

Pacific Northwest Laboratory
This national center for science and engineering solves problems involving energy, the environment and national security. Through a contractual agreement with Battelle Memorial Institute, this laboratory also offers an extensive capability for the transfer of technology to industry.

Only the Energy Research Laboratories give you the power to make your mark—and make a difference!

Want to learn more?
Then learn more about the opportunities that are waiting for you at the Energy Research Laboratories. Resumes can be sent to the laboratories listed below.
AT&T’s Cooperative Research Fellowship Program (CRFP) was initiated twenty years ago to provide financial support for high-potential African Americans, Hispanics, and Native Americans, who are underrepresented in science and engineering. The program helps these individuals pursue doctoral studies in mathematics, computer science, engineering, and the physical sciences. Once you are accepted, the program pays for your tuition, fees, and books. In addition, it grants you an annual stipend ($13,200 for the 1993-1994 academic year) and makes it possible for you to attend conferences. It provides you with a summer job at AT&T Bell Laboratories in a field related to your program. And it supplies you with a Bell Labs mentor on whom you can depend during the early years of your career.

Today, the program’s graduates are part of the fabric of American science and engineering, and they are found throughout industry, academia, and government. Of the sixty-seven Fellows awarded PhDs, twenty-nine (43%) are working in industry and twenty (30%) in academia. The remaining eighteen (27%) are either working in government or pursuing post-doctoral degrees.

A study by the National Action Council for Minorities in Engineering (NACME) concluded that AT&T’s CRFP significantly affects the graduate experience and subsequent career paths of the Fellows. As Willetta Greene-Johnson, a 1987 graduate of the University of Chicago and current Professor of Chemistry at Chicago’s Loyola University said, “CRFP was a definite, positive experience. The program helped me make my decision to pursue science as a career. My summer job at the Labs gave me an opportunity to see how ‘real science’ was done.”

To obtain an AT&T CRFP application and brochure, call the Program Administrator at 908 949-2943 or mail or fax the coupon below. All applications and supporting materials must be received by January 15, 1994.

Mail or fax this coupon for your AT&T CRFP application and brochure
Mail to: CRFP Program Administrator, AT&T Bell Laboratories,
101 Crawfords Corner Road, Room 1E-230,
Holmdel NJ 07733-3030
FAX: (908) 949-1534

Name

Address

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Committed To Train Of Scientists And

The National Institutes of Health is the world's largest institution committed to biomedical research. The NIH intramural research program, which brings together more than 4,000 doctoral level scientists and a clinical center that is home to half of all research beds in the country, has traditionally provided exceptional postdoctoral training opportunities in both the basic and clinical biomedical sciences. In addition, the NIH is fully committed to helping prepare the upcoming generation of scientists by providing programs for graduate, medical, and college students. Programs for college faculty and secondary school teachers are also available to help the nation's professors and teachers better prepare the next generation of scientists.

The National Institutes of Health also seeks to ensure that the upcoming generation of scientists reflects the rich cultural diversity of this Nation's citizenry. The NIH and the Minority Officers Liaison Council of the United States Public Health Service are committed to achieving this goal and enhancing the training experience and career development of all postdoctoral fellows at the NIH.

The following descriptions introduce the various postdoctoral and other educational opportunities available at the National Institutes of Health. Minorities are especially encouraged to explore the various training opportunities which are available and to contact the Office of Education for additional information.

Postdoctoral Training Programs

Laboratory Research Training

Postdoctoral fellowships are available to conduct fundamental biomedical research in a wide variety of disciplines at the NIH. 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 (e.g., MD, DO, DDS, DMD, or DVM) accompanied by previous laboratory research experience. Current postdoctoral openings at the NIH are posted on the NIH EDNET Bulletin Board's POSTDOC conference which is available via modem. In addition, the NIH welcomes applications for anticipated openings nine months to a year in advance. A catalog featuring research descriptions of NIH scientists has been developed to assist prospective fellows in this process and the catalog is available from the NIH Office of Education. Research descriptions may also be accessed on the NIH Gopher server on Internet. Individuals interested in pursuing research training through the Clinical Investigator Pathway of the American Board of Internal Medicine may contact the NIH Office of Education for additional information.

Clinical Research and Subspecialty Training

Subspecialty training at the NIH allows physicians to become board-certified specialists who are also prepared for careers in academic medicine. In-depth training in clinical and/or basic research complements the fellow's clinical training in the following programs which are accredited by the Accreditation Council on Graduate Medical Education or by boards in their respective disciplines: Allergy and Immunology, Anatomic Pathology, Critical Care Medicine, Dermatology, Diagnostic Immunology, Endocrinology and Metabolism, Gastroenterology, Hematology, Infectious Diseases, Medical Genetics, Medical Oncology, Nuclear Medicine, Oral Medicine, Pediatric Endocrinology, Pediatric Hematology/Oncology, Psychiatry (fourth year), Radiation Oncology, Reproductive Endocrinology, Rheumatology, and Transfusion Medicine. Programs in Clinical Chemistry and Clinical Microbiology offer credit toward board certification on an individual basis.

Re-Entry Postdoctoral Training

A new program has been developed at the NIH to assist individuals with terminal degrees (e.g., MDs, PhDs, MD/PhDs, etc.) who have had to delay or postpone their research careers because of family responsibilities. Research training, supported by
courses and workshops, is provided to assist participants in their retraining and eventual re-entry into research careers.

**Accessing Information on Postdoctoral Training Electronically**

The NIH EDNET Bulletin Board's POSTDOC conference may be accessed by Internet (cu.nih.gov) or via modem (1,3014022221 or 1,8003582221). The settings for modem access are "7,Even,1". When connected to NIH, type in ",vt100" at the connect message, "F5E" at initial, and "AJL1" at account.

An electronic version of the Postdoctoral Research Fellowship Opportunities catalog may be accessed via the network-based (Internet) Gopher Information System. To access the NIH Gopher server, Gopher client software (available via anonymous ftp "boombox.micro.umn.edu") must be running on your computer and configured to point to "gopher.nih.gov" and port "70". Select *Grants and Research Information* to reveal the NIH Office of Education directory.

**Graduate Student Programs**

Students interested in doctoral training in genetics are encouraged to consider the NIH-George Washington University (GWU) *Graduate Program in Genetics*. NIH and GWU faculty provide didactic instruction and dissertation research is conducted in NIH laboratories. Full tuition and stipend support are provided.

**Medical and Dental Student Programs**

The *Summer Research Fellowship Program* provides eight to ten weeks of basic research training for students in the summer following their first or second year. In addition, nineteen different *Clinical Electives* are available for third and fourth year students, providing clinical and clinical research experiences unduplicated elsewhere.

**Undergraduate Student Programs**

Students can participate in state-of-the-art biomedical research through the *Summer Internship Program*. The summer program also provides workshops on career pathways and strategies for a successful scientific career, as well as a weekly seminar series. In addition, juniors or seniors who are preparing for careers as secondary science teachers may participate in the *Pre-Service Teacher Program* to gain experience in biomedical research, the use of new technologies, and the teaching of bioethical issues.

**Secondary School Teacher Programs**

Several summer programs provide opportunities for teachers to participate in laboratory research, including an *In-Service Teacher Program*. It offers teachers from schools with predominately minority enrollments an in-depth course in molecular biology before the research experience begins. Training in the teaching of bioethics and use of electronic databases is also provided.

To find out 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.

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**National Institutes Of Health**

**Office Of Education**

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PH.D. Programs in

Molecular and Cellular Life Sciences

To provide students with maximal choice and flexibility in selecting a research specialization, the basic science departments at UCLA offer a combined recruitment, admission and first-year program. This initiative, known as UCLA ACCESS to Programs in the Molecular and Cellular Life Sciences, represents a simple, flexible mechanism for maximizing research choices throughout the first year of graduate study. As part of this program, students are able to select research projects from 150 faculty mentors according to changing perceptions, interests and goals without regard to traditional departmental boundaries. Ethnic, gender and cultural diversity are both a strength and a priority at UCLA and we solicit and encourage applicants who will increase and strengthen our diversity.

All Ph.D. students are fully supported through a variety of sources including the following federally sponsored pre-doctoral training programs:

- Cellular and Molecular Biology
- Genetics
- Atherosclerosis
- Tumor Cell Biology
- Biotechnology
- Tumor Immunology
- Microbial Pathogenesis
- Chemistry/Biology Interface Training

For information and application materials:

UCLA ACCESS
Molecular Biology Institute, University of California, Los Angeles
Los Angeles, CA 90024-1570
(800) ATG-UCLA or (310) 206-5280
Pfizer’s Central Research Division is a global medical and scientific community with headquarters in Groton, Connecticut. Our expanding facility offers an unparalleled environment for professionals who want to discover innovative treatments for disease as well as expand their own potentials.

**DR. RICARDO OCHEA, DIRECTOR**

As Director of Pathology in the Drug Safety Evaluation Department, I lead a team of veterinarians trained in toxicologic pathology. Our major responsibilities are to evaluate the safety of new drug candidates in all therapeutic areas. This is challenging work and I would certainly like to encourage members of minority groups to seriously consider this field. After work I am a dedicated long distance runner and find southeastern Connecticut ideal for this activity.

**DR. EDNA GARCIA, RESEARCH SCIENTIST**

Pfizer liked my years of team experience as an engineer and medical technologist, coupled with my mass spectrometry research. But, as a native Texan with over 300 years of family ties there, I had to look closely at the company and the community before I committed to Pfizer. I’ve found that working with structurally unique molecules is very satisfying. It’s been a pleasure living here, too. People are quite friendly, and the rural atmosphere has been really good for me and for my family.

**MS. JANET GREEN, BIOMETRICIAN**

As a clinical research biometrician, I work closely with new agents that are potential candidates for regulatory approval. It’s very interesting working here — no one is looking over your shoulder; you can use your own initiative. Outside of Pfizer, I’m president of the local YWCA Board, and I participate in programs that acquaint young women with science and math careers and prepare them for entering the workforce.

**DR. DANIEL YOHANNES, RESEARCH SCIENTIST**

I am a synthetic organic chemist in Medicinal Chemistry. The focus of our research is to design small molecules to improve cognition in the treatment of Alzheimer’s disease, and I also work closely with my colleagues in biology, to define the activity profile of new drug candidates. Good teachers along the way nurtured my interest in science...and Pfizer offers me another such opportunity.

**MS. GWENDOLYN ROBINSON, ASSOCIATE SCIENTIST**

I study behavioral effects of new compounds for anxiety, Alzheimer’s disease, and psychosis and support other disease studies as well. It’s a challenging field and I feel I have the freedom necessary to select the studies appropriate to the project. As a student, my favorite subject was zoology, so it is not surprising that my career at Pfizer has been focused on studying behavior. I’ve raised three children here, too and like the schools, the coast and the change of seasons.

**DR. DAVID BLACKWELL, SENIOR RESEARCH SCIENTIST**

While an intern in the summers for a pharmaceutical company, I developed a strong interest in toxicology. As a veterinarian, I now work in the General Toxicology Group within the Drug Safety Evaluation Department. My technical responsibilities include evaluating the safety profile of compounds designed to treat human diseases. I feel a strong sense of responsibility in this role — people’s lives depend on it.

**DR. JOHN VINCENZ, ASSOCIATE DIRECTOR**

I have a varied background in clinical medicine, with a PhD degree in Clinical Pharmacology. As a member of the Early Clinical Research Group, I am responsible for designing and carrying out studies to determine the safety, toleration and pharmacokinetics of new drug candidates. I’ve found Pfizer to be a fascinating place; its quality and its openness are remarkable. And that holds true for the communities here as well. I have children involved in scouting for example, and they clearly have found a home.

As a research-based, global health care company, Pfizer’s mission is to create innovative products that improve the quality of life around the world. If you are interested in joining our dynamic scientific team, please send your resume to: Manager, Employee Resources Department, Pfizer Inc, Central Research Division, Eastern Point Road, Groton, CT 06340. We are an equal opportunity employer.
You worked hard to get here,

What You Work On Now Could Be Up To You. You were born with natural talent and imagination. You attended one of the most demanding schools in the country. You worked hard to acquire the skills and knowledge to cultivate your gift and develop a meaningful future for you and your family. Now you want to discover your fullest professional potential.

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Southwest Research Institute in San Antonio, Texas, is actively seeking qualified and experienced individuals in the following areas:

- Chemical Engineers
- Geologists
- Chemists
- Mechanical Engineers
- Computer Scientists
- Physicists
- Electrical Engineers

We offer competitive salaries and comprehensive benefits and when you're ready for an advanced degree, we'll foot 100% of the tuition because we want you to continue to reach your fullest potential.

If you are a highly motivated and success-oriented college graduate with a very strong academic background and excellent communication and interpersonal skills, then what you work on now could possibly be up to you at Southwest Research Institute.

Inquiries and/or resumes should be addressed to: Southwest Research Institute, Personnel Department #723, 6220 Culebra Road, P.O. Drawer 28510, San Antonio, Texas 78228-0510.

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Bristol-Myers Squibb Pharmaceutical Research Institute, Human Resources Department PRI JW-405S.
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ROUSES POINT/CHAZY, NEW YORK
This location on beautiful Lake Champlain invites candidates with B.S./M.S. or Ph.D. degrees in the appropriate scientific disciplines to inquire about our openings in Analytical Chemistry, Chemical Development, Pharmaceutical Sciences, Formulations, Toxicology and Drug Safety. Respond to Wyeth-Ayerst Research, Human Resources, 64 Maple St., Rouses Point, NY 12979.

PRINCETON, NEW JERSEY
Candidates with B.S./M.S. or Ph.D.'s in the appropriate scientific discipline (Molecular Biology, Biology, Immunology, Pharmacology, Biochemistry, Toxicology, Organic Chemistry and Analytical Chemistry) are sought to staff positions in Cardiovascular/Metabolic Disorders, Central Nervous System Pharmacology, Drug Metabolism, Exploratory Toxicology, Molecular Genetics, Synthetic Organic Chemistry, Inflammation/Allergy/Immunology and Analytical Chemistry. Respond to Wyeth-Ayerst Research, Human Resources, CN 8000, Princeton, NJ 08543-8000.

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If you are interested in joining an organization where outstanding individuals are valued and rewarded for their contributions, forward your resume to: Genentech, Inc., Human Resources, Dept. SA/A, 460 Point San Bruno Blvd., South San Francisco, CA 94080. We actively support and promote affirmative action and equal employment opportunity. Minorities and women are encouraged to apply.

Genentech, Inc.
The Memorial Sloan-Kettering Cancer Center offers postdoctoral training fellowships in basic laboratory and clinical research. Stipends provided are based upon level of postdoctoral experience. For additional information write to program directors listed below.

CLINICAL SCHOLARS TRAINING PROGRAM IN BIOMEDICAL RESEARCH
Richard A. Rifkind, MD - Director
This two-year postdoctoral fellowship program provides training for a select group of physicians who have completed their clinical training and demonstrate a commitment to careers in biomedical research. Training opportunities are available in the research programs of: molecular biology, cell biology and genetics, cellular biochemistry and biophysics, immunology and molecular pharmacology and therapeutics.

SURGICAL ONCOLOGY RESEARCH TRAINING PROGRAM
Murray F. Brennan, MD - Director
The program seeks to strengthen academic surgical oncology research by training surgical fellows in laboratory research related to biology of human cancer. Research opportunities include areas such as metabolism, neurophysiology, molecular biology, cell biology, immunology, immunopathology and genetics.

PSYCHIATRIC AND PSYCHOLOGICAL RESEARCH TRAINING IN AIDS
Jimmie Holland, MD - Director
This training program seeks to address the urgent need to recruit and train more investigators to conduct research on the mental health aspects of the AIDS epidemic. The program draws upon a faculty involved in investigations of psychiatric, neuropsychological, and behavioral aspects of AIDS/HIV infection in diverse populations (gay men, women, intravenous drug users and minority group members). The methods used to train new investigators include didactic seminars, apprenticeship with experienced investigators, and supervised conduct of independent research.

PSYCHIATRIC AND PAIN RESEARCH TRAINING IN CANCER
Jimmie Holland, MD - Director
This training program seeks to address the urgent need for a cadre of investigators with expertise in the supportive care areas of pain, psychological distress, supportive/palliative care, psychoneuro-immunology and behavioral medicine. The training program is open to psychologists and physicians with training in psychiatry, neurology, medicine and oncology. Its world renowned faculty is involved in research of the psychiatri, neuropsychological, behavioral, neuroimmunological and pain related (clinical and laboratory) aspects of patients with cancer. The curriculum to train these clinical investigators includes didactic seminars, apprenticeship with experienced clinical investigators in pain, psychiatry, psychology and neurology and closely supervised conduct of independent research.

GASTROINTESTINAL ONCOLOGY RESEARCH
Sidney J. Winawer, MD - Director
The program offers opportunities for basic and applied research in Gastrointestinal Cancer. A number of interrelated groups are working on collaborative efforts and jointly participate. This affords the trainees an excellent opportunity to study a wide spectrum of biological, molecular genetic, immunological and pharmacological approaches to gastrointestinal cancer and its etiology. There is special emphasis on cancer prevention, nutrition and inheritance.

CANCER CHEMOTHERAPY TRAINING PROGRAM
John Mendelsohn, MD and George Bosl, MD - Co-Directors
The Oncology/Hematology Fellowship Program provides qualified physicians with comprehensive clinical training necessary for certification in Internal Medical subspecialties of Oncology and Hematology and research training designed to prepare the trainee for an academic research career. Through the Cancer Chemotherapy Training Program, clinical and laboratory scientists from Memorial Hospital and the Sloan-Kettering Institute provide opportunities in and supervision of basic and applied research training in gene expression, growth factor modulation, differentiation, drug resistance, gene transfer, and clinical trials methodology after the completion of clinical training.

IMMUNOLOGY RESEARCH TRAINING PROGRAM
Kenneth O. Lloyd, PhD - Director
The program offers training in areas of modern immunology. These include human and mouse immunogenetics, function and mechanism of action of T lymphocytes, biology of B lymphocytes, and molecular control of HLA antigen genes. Another interest is in T cell development and selection in the thymus and in the peripheral circulation. The Program also has strong efforts in tumor immunology, with an emphasis on an analysis of the immune response in tumor cancer antigens, the production of human and mouse monoclonal antibodies to tumor antigens and the clinical application of these antibodies.

HEAD AND NECK TRAINING PROGRAM - SURGICAL ONCOLOGY
Stanislaw F. Schantz, MD - Director
This is a two year program with dedicated clinical and research training opportunities in head and neck oncology. A specific focus will be placed on cancer prevention and detection strategy for tobacco-induced cancer.

ENDOCRINE AND METABOLIC RESEARCH TRAINING PROGRAM
Martin Rosenberg, MD, PhD - Director
The objective of the Endocrine Research Training Program is to develop research physicians and scientists who will contribute to an understanding and management of endocrine and metabolic diseases. We are integrating the training programs of 17 faculty members of 4 neighboring institutions, Memorial Sloan-Kettering Cancer Center, The Rockefeller University, the New York Hospital-Cornell Medical Center and The Population Council. Areas of research include: mechanism of hormone action, hormonal control of growth and differentiation, regulation of testicular function, neuroendocrine control of neural gene expression, control of membrane channel function, biochemical genetics and metabolism of atherosclerosis, hormonal control of bone metabolism, anti-receptor antibodies in cancer treatment.

MSKCC is committed to equal opportunity through affirmative action and therefore, members of minority groups are encouraged to apply.

Memorial Sloan-Kettering Cancer Center
1275 York Avenue
New York, NY 10021
and you thought we just made baby powder

It's understandable. Most people only know us the way they see us everyday - through our famous brand names.

But there's more to Johnson & Johnson than the products you grew up with. Much more.

The fact is, we're a worldwide family of companies serving customers throughout the health care industry.

Our products are as diverse as the people who work for us and include everything from TYLENOL® analgesic to sutures.

So no matter what your career interests are, there's a good chance you'll find what you're looking for at Johnson & Johnson.

When you look at the whole picture, it's easy to see why we're a $13 billion success story.

If interested in pursuing a career opportunity within the J&J Family of Companies, please send resume (suitable for scanning) indicating your functional interests and location preferences to: Corporate College Relations/Dept. 006, Johnson & Johnson, 501 George Street, New Brunswick, NJ 08901.

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