

# From the New York Academy of Sciences Science Alliance

## Pockets of Plenty Non-government Funds for Young Scientists

By [Leslie Knowlton](#)  
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*Partnerships with pharmaceutical companies and grants from foundations are some sources of support that early career researchers should seek out. A number of Web sites can be used to search for opportunities.*

Despite flattening trends, federal grants are still by far the nation's largest source of financial aid for academic researchers. But in a very competitive landscape, it would be nice to have other options. Good news: Academic scientists and especially young investigators today can turn to an increasing variety of alternative funding sources including industry and philanthropies.

### Pieces of the pie

According to the latest figures from Research!America, a not-for-profit public education and advocacy alliance for health research, about \$116 billion is spent annually in the United States on biomedical research. The biggest portion of that spending—about \$65 billion—derives from research and development at pharmaceutical and other biomedical companies. Traditionally, most of that research was conducted in-house, but increasingly companies are partnering with academia to conduct basic research as well as clinical trials.

Of grantors working for the public interest, federal entities, including the National Institutes of Health, give about \$38 billion to biomedical researchers annually, and philanthropic donors, including a variety of foundations, charities, and individuals give an estimated \$2–\$5 billion per year, a number that is expected to increase as a result of maturing, affluent baby boomers. (Most charitable giving comes from individuals rather than foundations or other public charities.)

"Although grants from charitable organizations pale in comparison to what the federal government is putting into the bucket, they're very useful to support various areas of science, and scientists ought to go after them," said **Queta Bond**, president of the Burroughs Wellcome Fund, an independent private foundation that grants \$40 million a year for medical science-related activities.

Likewise, dollars from industry are of value, Bond added. "It's very important that we forge relationships between our industrial complex and our university complex in the area of medical research. By getting these industrial dollars, scientists at the university level help forge these relationships and translate work into products that benefit people," she said, adding that philanthropic dollars can lubricate this process.

**Scott P. Kennedy** is executive director of World Wide Exploratory Science and Technology at Pfizer, Inc. Speaking about industry-academic partnerships at a recent meeting sponsored by the New York Academy of Science's **Science Alliance for Students and Postdocs** and held on February 6, 2008, at Weill Cornell Medical College, he noted the long and expensive road from the formulation of a good discovery idea to the acceptance of a new drug in the marketplace. "Since the foundation of what we do is based on science, academic and biotechnology partnerships are a critical component of the drug discovery and development process, and ultimately, success for our industry and patients."

### Benefits of philanthropic grants

Philanthropic dollars benefit young scientists because unlike most federal funds, many charities specifically target their grant programs to that population. "It's hard to make any kind of generalization but a lot of foundations are investing in younger investigators," said Bond. "Disease-oriented groups in particular want to be sure to recruit new investigators to study their diseases."

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## Philanthropic dollars are more flexible than federal funds.

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Philanthropic dollars are more flexible than federal funds. Priorities and policies can be set independently of governments and with far less red tape. Timelines for spending are not as strict, applications are shorter, decisions are quicker, and preliminary data are generally not required.

"We're betting on the person rather than the research idea, so we rely very heavily on letters of recommendation—and for the older scientists, track record—rather than the data that is so much a part of the government proposal," said Bond. "We say 'develop new ideas, develop new data to then [use to] get a government grant.' Money from foundations and charities provide the risk capital for the scientific community."

**Mark Cardillo**, executive director of the Camille and Henry Dreyfus Foundation, agreed. "We do not support research in the sense that you write us a research proposal and get funded," he said at the Science Alliance meeting where Kennedy spoke. "We support people."

### Partnering with industry

Explaining the growing trend in academia-industry partnerships, Kennedy noted that on average it requires 12 to 15 years and more than \$1 billion to bring a drug to market. But this cost is not related to that one compound; rather it's related to the failure of so many other drug programs, primarily due to safety and efficacy issues. "On average, only one of every one hundred discovery programs ever becomes a new medicine, with the result that over 75% of the cost of a launched product is due to the unpredictable failure of other products. Also, clinical trials are the most time- and cost-expensive parts of our business life cycle, so we must find ways to terminate losing approaches earlier and invest in the winners," he said, adding that the cost of clinical trials for just one compound that failed was \$850 million.

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## Pharmaceutical companies look to partner with academic scientists all along the drug development path.

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To help offset failure rates, pharmaceutical companies increasingly look to partner with academic scientists all along the drug development path, from conception to approval. "We want to dramatically raise the bar in biotherapeutics and pursue the best science outside our walls," Kennedy said. "These partnerships help increase confidence and improve decision making on issues of safety and efficacy preclinically, which can reduce attrition and expedite the provision of new quality drugs to patients more quickly and at lower costs."

Collaborations may focus on the discovery of novel technologies and drug targets to lead discovery projects, the gift of drugs or compounds to academic researchers, and external sourcing of research. A successful collaboration, like any business partnership, requires that multiple legal and strategic issues be addressed, including infrastructure, safety, regulatory matters, intellectual property, technical and personnel considerations, source document capture, and data analysis issues.

But despite such complexities, rewards to academic researchers can be great. In addition to research funding, collaborations include the opportunity to be involved in drug discovery, get access to industry's screening expertise and chemical collection, gain chemical tools for basic science, and develop valuable relationships. There is also potential for financial returns as a result of successful projects.

### The philanthropic landscape

The first step in obtaining philanthropic grants is to gain a basic understanding of the various types of funding. "It's a very confusing landscape because there are so many different communities that provide support for research," Bond said, adding that each type of funder differs in structure, leadership, goals, and way of operating, all of which leads to different funding priorities and approaches.

One sector includes private foundations, non-profit entities that receive funds from one or a few sources. They are generally classified into three types: independent or family, corporate, and operating. By far the most common type, and the type that grants the most money, is the independent or family foundation that derives funds from an individual, family, or corporation, such as the Doris Duke Charitable Trust and the Camille and Henry Dreyfus Foundation. Corporate foundations are created and funded by their parent companies through

endowments, but are legally separate entities. (Most pharmaceutical companies have foundations, such as the Bristol-Myers Squibb Foundation.) Operating foundations such as the Kaiser Family Foundation run their own facilities, such as museums or research institutes, but may also provide some limited financial support in the form of grants.

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### Many public charities address small-population diseases that receive less attention from government and industry.

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Public foundations are non-profit entities that receive funding from multiple sources. A fast-growing segment is composed of community foundations that are supported by and operated for the benefit of a specific community or geographic region, such as the New York Community Foundation. Another fast-growing type is set up with proceeds from healthcare conversions. Called "new health foundations," they are established from the sale or transfer of assets of nonprofit hospitals, HMOs, and insurance providers to for-profit providers.

Voluntary health organizations are public charities that are often formed to address a particular disease, such as the American Cancer Society and American Heart Association, which raise money from the public to support activities including research. (Many public charities, such as the Cystic Fibrosis Foundation, began to address small-population diseases that typically receive less attention from government and industry than other diseases.)

Medical research organizations also provide research support. One example is the Howard Hughes Medical Institute. With an endowment of \$16.3 billion, it commits almost \$700 million annually for biomedical research. HHMI has also recently announced a new special program for funding **early career scientists**.

Other non-government philanthropic sources are corporations who, in addition to or instead of setting up corporate foundations, have corporate giving programs that are directly administered by that corporation rather than through a foundation. A large part of this giving is in the form of product donations, such as Merck's gift of Mectizan, a drug that prevents river blindness, to more than 25 million people in Africa.

### On the prowl: finding alternative grants

Most academic centers have administrative specialists who can aid funding quests. Mentors and colleagues may have first-hand experience with various funding agencies and be able to provide references and referrals. Funders usually have their own Web sites, but print directories and online databases can facilitate finding them.

The nonprofit **Foundation Center** has a suite of print and on-line databases cataloging U.S. private foundations, community foundations, grantmaking public charities, and corporate giving programs, in addition to information on how to find and cultivate individual donors. The organization's Foundation Directory Online catalogs over 92,000 foundations and corporate donors, 1.3 million recent grants, and more than 400,000 key decision makers. It also operates research, education, and training programs, and publishes *Philanthropy News Digest*, which reports RFPs (requests for proposals) and notices of awards.

Another excellent source is **GrantsNet**, the American Association for the Advancement of Science's science funding database. Available on ScienceCareers.org, GrantsNet consists of two searchable databases, one for student and institutional support, and another for research funding. The research database holds a total of 2155 worldwide programs of which 1419 are currently active (some are inactive due to rolling deadlines and lag in updates). As of press time, 653 programs are philanthropic and 5 are industry-funded. GrantsNet also provides resources including educational materials and information about funding trends.

The **Community of Science (COS)** hosts COS Funding Opportunities, an online international database with more than 22,000 records representing nearly 400,000 opportunities, worth over \$33 billion. And the Council on Foundations, a nonprofit membership association of more than 2100 grantmaking foundations and corporations, provides a **Community Foundation Locator** that lists hundreds of U.S. community foundations by state, in addition to a wealth of other information.

Another good resource is the Web site **The Chronicle of Philanthropy**, which offers the complete contents of the latest issue, an archive of past articles, and more than four years' worth of grant listings, all fully searchable.

To find industry opportunities, develop relationships with scientists working in industry by attending meetings, conferences, and presentations. "Most of this is person-to-person, talking and listening," said Kennedy. Some universities such as the Massachusetts Institute of Technology have already developed official liaisons with industry. Consult Web sites of pharmaceutical and biotechnology companies. Some have consolidated information regarding their partnership opportunities. For example, the Web pages for **Pfizer's Worldwide Business Development (WWBD) Group** detail the firm's many collaborative opportunities and give instructions for pursuing them.

A list of companies and their Web site addresses can be found on the **Pharmaceutical Research and Manufacturers of America (PhRMA)** web site. The **Biotechnology Industry Organization (BIO)** Web site has a searchable database of the sites of its more than 1150 worldwide members.

"One of the strengths of the U.S. research enterprise is the multiple source of government, industrial, and charitable organizations," said Bond. "The differences in perspective and approaches provide a variety of mechanisms to obtain funding."

**Leslie Knowlton** is a freelance writer based in New York City and on Deer Isle, Maine. With a master's degree in psychology, she spent more than a decade as a correspondent for the *Los Angeles Times* and a medical writer and contributing editor for the *Psychiatric Times*. Her work has also appeared in dozens of other newspapers and magazines including the *Boston Globe*, *Chicago Tribune*, *New York Daily News*, *Cosmopolitan* and *Fitness*.