

TheScientist

BEST PLACES TO WORK 2011

INDUSTRY

FACULTYof1000

By forging new relationships and finding novel uses for existing technologies, this year's top companies are employing creative ways to advance their science.

BY HANNAH WATERS

Like the reeds of an old Aesop fable, the companies that topped our 2011 Best Places to Work in Industry survey are bending—but not breaking—under the strain of continued economic adversity. With funding agencies still awarding grants only to the cream of the crop and 2009 stimulus funds expected to run dry as soon as next year, companies are working hard to find new funding sources that will allow them to survive despite the still-depressed economy.

Taking advantage of the growing personal-genomics boom, for example, DNA Genotek, the survey's #8 company, expanded the market for its saliva-based DNA collection kit from population geneticists in the field to consumers in their homes by licensing its wares to genetic-testing companies. The recent uptick in the use of personalized genetic tests has boosted DNA Genotek's income, which the company puts right back into basic research. "Personal genomics just became yet another market that we're playing into," says DNA Genotek product development manager Rafal Iwaszow.

New collaborations were also common among this year's top companies. Epizyme, the survey's #1 company, which specializes in developing inhibitors for epigenetic enzymes, recently signed

deals potentially worth more than \$800 million with pharmaceutical giants GlaxoSmithKline and Eisai to develop epigenetics-targeted therapies for cancer and other diseases. "It's a good sign for our company's stability in the near term," says Epizyme research associate Christina Allain.

Other top companies are collaborating with a different type of partner altogether—academia. Conversant Bio, a Huntsville, Alabama-based biotech that offers patient-sample and cell-based assays, formed relationships with labs at Stanford University to share samples, equipment, and information. And in Fargo, North Dakota, 3rd-ranked Aldevron is participating in a state-funded project to build a science city, involving collaborations between North Dakota State University labs and local research companies. "There's a really neat synergy that's forming here," says Aldevron's director of business development Michael Jablon.

Read on to learn more about the strengths and weaknesses of this year's top-ranking companies, how multinational companies are using their diversity to their advantage, and the different ways companies are creatively utilizing state and federal funding to help their researchers succeed.



TOP 40 COMPANIES

#1-20

RANK 2011	RANK 2010	COMPANY	SIZE	NO. OF EMPLOYEES	STRENGTHS	WEAKNESSES
1	-	Epizyme, Cambridge, MA	Small	< 50	Integrity Communications	Remuneration and Benefits Training and Development
2	-	Conversant Bio, Huntsville, AL	Small	< 50	Job Satisfaction Management	Remuneration and Benefits Training and Development
3	-	Aldevron, Fargo, ND	Small	50 - 100	Communications Remuneration and Benefits	Training and Development Research Environment
4	-	Millennium Pharmaceuticals, Cambridge, MA	Small	1,000+	Training and Development Remuneration and Benefits	Communications Integrity
5	-	Acorda Therapeutics, Hawthorne, NY	Small	100 - 500	Policies and Practices Training and Development	Research Environment Communications
6	-	Vitae Pharmaceuticals, Fort Washington, PA	Small	50	Research Environment Management	Training and Development Remuneration and Benefits
7	-	Celldex Therapeutics, Needham, MA	Small	100	Remuneration and Benefits Training and Development	Job Satisfaction Integrity
8	-	DNA Genotek, Kanata, Ontario	Small	50 - 100	Job Satisfaction Integrity	Remuneration and Benefits Training and Development
9	2	Wyatt Technology, Santa Barbara, CA	Small	100 - 500	Job Satisfaction Management	Training and Development Research Environment
10	-	DuPont, Wilmington, DE	Large	6,000	Training and Development Job Satisfaction	Research Environment Management
11	-	Vertex Pharmaceuticals, Cambridge, MA	Small	1,500+	Remuneration and Benefits Policies and Practices	Job Satisfaction Communications
12	8	Pioneer Hi-Bred: A DuPont Business, Johnston, IA	Large	10,000+	Training and Development Integrity	Research Environment Remuneration and Benefits
13	7	Dow AgroSciences, Indianapolis, IN	Large	5,000+	Training and Development Remuneration and Benefits	Research Environment Communications
14	9	Integrated DNA Technologies, Coralville, IA	Small	500 - 1,000	Research Environment Communications	Remuneration and Benefits Training and Development
15	5	Monsanto, St. Louis, MO	Large	20,000	Remuneration and Benefits Training and Development	Management Research Environment
16	16	Amgen, Thousand Oaks, CA	Large	17,000	Remuneration and Benefits Integrity	Job Satisfaction Training and Development
17	12	Alnylam Pharmaceuticals, Cambridge, MA	Small	*	Training and Development Communications	Integrity Management
18	17	Novartis, Basel, Switzerland	Large	115,000+	Remuneration and Benefits Training and Development	Communications Policies and Practices
19	-	Promega Corporation, Madison, WI	Small	1,000+	Job Satisfaction Training and Development	Research Environment Remuneration and Benefits
20	-	Cancer Genetics Inc., Rutherford, NJ	Small	50	Job Satisfaction Communications	Remuneration and Benefits Research Environment

Epigenetic Endeavors at Epizyme

#1 Epizyme, the #1 company on this year's overall list, has grown exponentially since its founding in 2007—from just two employees to its current R&D staff of 26. In the last year, the company identified two novel mechanisms linked to cancer, inked partnerships with two major pharmaceutical companies, and signed a lease on a larger office. The growth is “a tremendous validation of us as a company and how we're executing things,” says medicinal chemist Ed Olhava.

Based in Cambridge, Massachusetts, the company researches the epigenetics of cancer and develops drugs to modify variations in DNA methylation. The company recently identified how normal and mutant histone methyltransferase EZH2 work together to regulate growth in B-cell lymphomas, and developed a small-molecule inhibitor for another methyltransferase, DOT1L, which is able to selectively kill mixed-lineage leukemia cells in vitro.



RANK 2011	RANK 2010	COMPANY	SIZE	NO. OF EMPLOYEES	STRENGTHS	WEAKNESSES
21	-	ArQule, Woburn, MA	Small	100 - 500	Communications Policies and Practices	Integrity Management
22	-	Tengion, East Norriton, PA	Small	50 - 100	Job Satisfaction Communications	Training and Development Remuneration and Benefits
23	22	Targacept, Winston-Salem, NC	Small	100 - 500	Management Job Satisfaction	Remuneration and Benefits Training and Development
24	4	Otsuka Maryland Medicinal Laboratories, Rockville, MD	Small	100 - 500	Remuneration and Benefits Research Environment	Integrity Communications
25	21	Lexicon Pharmaceuticals, The Woodlands, TX	Small	100 - 500	Research Environment Management	Remuneration and Benefits Training and Development
26	-	Agilent Technologies, Santa Clara, CA	Large	15,000+	Integrity Research Environment	Training and Development Policies and Practices
27	-	Bayer Corp, Leverkusen, Germany	Large	110,000+	Training and Development Remuneration and Benefits	Research Environment Communications
28	10	Abbott Laboratories, Abbott Park, IL	Large	90,000	Remuneration and Benefits Management	Training and Development Policies and Practices
29	18	Pfizer, New York, NY	Large	110,000	Training and Development Remuneration and Benefits	Communications Integrity
30	-	Genzyme, Cambridge, MA	Large	10,000	Policies and Practices Remuneration and Benefits	Research Environment Management
31	29	GlaxoSmithKline, Middlesex, UK	Large	99,000	Remuneration and Benefits Integrity	Job Satisfaction Management
32	-	Emergent Biosolutions, Rockville, MD	Small	100 - 500	Communications Training and Development	Integrity Research Environment
33	-	Syngenta Biotechnology, Basel, Switzerland	Large	25,000	Job Satisfaction Training and Development	Research Environment Management
34	-	Boehringer Ingelheim, Ingelheim am Rhein, Germany	Large	40,000+	Job Satisfaction Management	Communications Remuneration and Benefits
35	23	Regeneron Pharmaceuticals, Tarrytown, NY	Small	1,500	Training and Development Research Environment	Remuneration and Benefits Job Satisfaction
36	20	AstraZeneca, London, UK	Large	63,000	Remuneration and Benefits Management	Training and Development Research Environment
37	32	Asterand, Detroit, MI	Small	100	Policies and Practices Job Satisfaction	Training and Development Management
38	24	Merck KGaA, Darmstadt, Germany	Large	40,000+	Remuneration and Benefits Training and Development	Job Satisfaction Research Environment
39	25	Merck & Co., Whitehouse Station, NJ	Large	94,000	Remuneration and Benefits Policies and Practices	Communications Training and Development
40	-	Bristol-Myers Squibb, New York, NY	Large	27,000	Research Environment Job Satisfaction	Training and Development Management

Small companies have < 4,000 employees
* Declined to provide information

Epizyme's research has attracted the attention of pharmaceutical giant GlaxoSmithKline, which announced its partnership with Epizyme in January, providing the company with up to \$650 million to search for new epigenetic drugs. And this March, Epizyme signed a deal worth up to \$200 million with the Japanese company Eisai to develop therapeutics targeting EZH2 to treat lymphoma and other cancers.

Epizyme's newfound collaborations are a big change for the small company, and the employees are excited about what's to

come. "It's a great morale boost," says Christina Allain, who develops cell-based assays for the company—"a pat on the back."

Despite its growth, the company has stayed in the same, small office, says Allain. This isn't a complaint, however: "It gives us a real sense of camaraderie," she adds. But the employees' elbow room is about to expand. In March, Epizyme signed a lease for a space in Cambridge nearly twice the size of its current office. "We made sure to have a bar in the new conference room for happy hours," says Allain. "We have our priorities straight!"

TOP SMALL COMPANIES

RANK	COMPANY	NO. R&D EMPLOYEES	R&D NEW HIRES 2010	SIGNIFICANT DEVELOPMENTS
1	Epizyme	26	14	Identified two novel mechanisms linked to cancer, and inked partnerships with two major pharmaceutical companies potentially worth hundreds of millions of dollars.
2	Conversant Bio	7	4	Established a set of cellular products and cell-based assays for testing therapeutic agents on human samples.
3	Aldevron	14	3	Launched plasmid.com, a mail-order DNA purification service.
4	Millennium Pharmaceuticals	732	65	Started Phase III trials for TAK-700, a selective, oral, nonsteroidal androgen synthesis inhibitor to treat metastatic castration-resistant prostate cancer.
5	Acorda Therapeutics	29	7	Initiated Phase I clinical trials using GGF2 in cases of heart failure. The drug acts directly on heart muscle cells to repair cardiac muscle and improve its contractile function.
6	Vitae Pharmaceuticals	43	7	Launched a Phase IIb trial of VTP-27999, a novel therapy for patients with chronic kidney disease/diabetic nephropathy.
7	Celldex Therapeutics	59	7	Advanced rindopepimut, a vaccine for the most common brain cancer, glioblastoma multiforme, which is expected to enter Phase III development later this year.
8	DNA Genotek	21	5	Validated the reliability of Oragene, a saliva-based DNA collection kit for humans, and developed Performagene-LIVESTOCK to collect DNA from animal nasal samples.
9	Wyatt Technology	20	3	Received a Tibbetts Award from the US Small Business Administration, which recognizes accomplishments in small business innovation research.
10	Vertex Pharmaceuticals	1,140	161	Announced positive results from three Phase III clinical trials for telaprevir, a medicine in development for the treatment of hepatitis C.

Personal Genomics Boosts DNA Genotek

#8 DNA Genotek, #8 among this year's top-ranked companies, was developing easier ways for fieldworkers to collect DNA samples for research when the personal genomics craze took off, revealing an entirely new market for its products. "The explosion in the personal-medicine area definitely opened up opportunities for DNA Genotek," providing its employees with a novel revenue source, says Rafal Iwaszow, a former researcher who now works in development.

Until DNA Genotek released its saliva-based DNA collection product, Oragene, in 2004, there were only two reliable sources for routinely extracting DNA: a blood draw—a cumbersome process involving needles and a trip to the doctor—and a cheek swab or scrape, which can produce too small a sample. Because it uses saliva, Oragene allows patients to easily collect their own sample at home. The kits quickly became a widely trusted source for collecting DNA material, and are utilized by companies such as 23andMe and Navigenics.

Personalized genetic tests have "been a big opportunity and business focus for us," says Paul Payette, a business manager at DNA Genotek. But the saliva kit wasn't developed for personal use. The technology's original purpose was to help researchers studying the genetics of human populations around the world, using reagents to kill contaminating bacteria and stabilize the DNA for later analysis. Jane McElroy of the University of Missouri School of Medicine, who uses the Oragene kit to study genetic polymorphisms that may mediate a link between cadmium exposure and endometrial cancer, says the technology allows her to collect samples by mail and store them for years.

Now, with the money coming in from Oragene sales to personal-genomics companies, DNA Genotek has begun to develop saliva-collection kits for population genetics studies of animals, such as dogs, livestock, and endangered species. "When revenues are strong, that allows you to explore other avenues," says Payette.

TOP LARGE COMPANIES

RANK	COMPANY	NO. R&D EMPLOYEES	R&D NEW HIRES 2010	NET INCOME (BILLIONS)	SIGNIFICANT DEVELOPMENTS
1	DuPont	8,500	*	\$31.5	Placed among the Top 50 Innovative Companies by MIT Technology Review, secured 689 new patents and commercialized 1,786 new products.
2	Pioneer Hi-Bred: A DuPont Business	3,000+	497	\$5.3	Launched its Optimum product line, which mixes seed engineered to protect against the destructive pest corn rootworm with nonengineered seed to slow the evolution of resistance.
3	Dow AgroSciences	1,000+	200+	\$4.9	Won New Product of the Year from Ag Professional Magazine and AgriMarketing for SmartStax hybrids, corn seed genetically engineered for insect resistance and herbicide tolerance.
4	Monsanto	5,000	418	\$1.1	Commercialized two new insect-protected corn products, and advanced nine projects in its R&D pipeline.
5	Amgen	6,000	*	\$5.0	Produced two novel bone-health therapy medicines, received 13 international regulatory approvals, and advanced four new molecules to clinical trials.
6	Novartis	13,800	1,779	\$10.0	Received US approval for Gilenya, the first oral medication for first-line treatment of relapsing forms of multiple sclerosis.
7	Agilent Technologies	*	*	\$5.4	Completed the largest acquisition in the company's history with the purchase of Varian, a medical equipment supplier.
8	Bayer Corp	13,000	*	\$1.8	Received the Prix Galien International Award 2010 in the category Best Pharmaceutical Agent for their blood thinner, Xarelto.
9	Abbott Laboratories	9,500+	-300	\$6.5	Extended pharmaceutical pipeline with the acquisition of Fecet Biotech, Solvay Pharmaceuticals, and the pharmaceutical arm of Piramal Healthcare.
10	Pfizer	*	*	\$67.8	Updated vaccine against Pneumococcus pneumonia to include 13 serotypes of the bacteria, and created an Orphan and Genetic Diseases Research Unit to focus on rare diseases.

* Declined to provide information

Worldwide Collaboration

Maintaining regular and open communication among the worldwide branches of a multinational company is no easy task. But some of the companies that topped this year's list of large companies have managed to overcome this obstacle, sharing information across the globe to keep international research running smoothly and efficiently.

This year's #6 large company, Novartis, the fifth largest pharmaceutical company in the world (by 2009 revenue), has nine far-flung campuses in its Institutes for BioMedical Research alone. Apart from some minor language barriers, the diversity is a boon for research, says executive director Peter Finan. "People from different countries have a different view of how they do things, the risks they take, and the processes they follow," and these varied approaches are shared among research centers, he says.

The company's wide reach also opens doors to some unexpected collaborations, Finan says, such as the connections he's made with companies and universities in Shanghai, despite his home base in Cambridge, Massachusetts. Without a worldwide network, "you're unlikely to build the same level of collaboration that you can around

these local science hubs," he says. And with its high-tech communication equipment, Novartis's long-distance chats are accompanied by a life-size video feed of the teleconferencing researchers.

At Pioneer Hi-Bred: A DuPont Business, this year's #2 large company, there isn't just an international exchange of ideas, but of products as well. As a corn breeder and president of the company's research center in Italy, Bruno Albrecht selects for traits suitable for a particular region's environmental challenges. Sometimes a cultivar developed in one country will be successful in another region, such as the corn hybrids developed in North America now grown in the climatically similar Europe. Methods are also shared: the US branch recently developed a more efficient way of producing inbred lines, which is now employed in Pioneer's research centers worldwide.

This leads to some healthy competition between branches, Albrecht adds, as each center wants to develop the best product or method. But regardless of where it comes from, it's "good for farmers at the end if we're better able to deliver products with very outstanding performance."



Uncle Sam Helps Small Science

While much of biotech funding comes from venture capitalists and large pharmaceutical partners, some of the biotechs that topped this year's Best Places to Work survey have taken advantage of a different source—government-funded programs that provide specialized training and services, improving research productivity and employee morale.

Vitae Pharmaceuticals, a Pennsylvania company that develops biopharmaceuticals for disease and #6 on this year's list, is now able to fund a larger staff thanks to the federal Qualifying Therapeutic Discovery Project Program, which funds drug discovery projects for companies with fewer than 250 employees. This same program also helped Needham, Massachusetts-based Celldex Therapeutics, this year's #7 company overall, push products through preclinical and clinical trials. "To get a million dollars in cash might not sound like a lot of money to many companies," says Tina Fiumenero, the CFO at Vitae, which received funding for four separate projects. "But for a company like ours, that can pay for the salaries of several employees on a regular basis."

State programs can provide more direct benefits to researchers. Pennsylvania's Bioscience Industry Partnership program provided a grant that allowed Vitae to send company scientists Brian

McKeever and Yajun Zheng to an October 2010 training program on fragment-based drug discovery, which uses libraries of small molecules to identify those that bind to a specific target—a drug-development technique the company had never explored. "It taught us another way of thinking about the way we do things," says McKeever. "We brought the methodology home and have started implementing it already."

Fargo, North Dakota-based Aldevron, #3 among this year's top companies, benefits from a very different government-funded resource: the expertise of Satish Chandrasekhar, a "biotech superstar," according to Aldevron's CEO Michael Chambers. As the director of the brand-new North Dakota State University Center for Biopharmaceutical Research and Production, Chandrasekhar has raised over \$10 million dollars in the last 10 months to advise companies, facilitate collaborations between industry and academia, and provide specialized training to students. "The ultimate goal is to increase biotech activity and jobs in the biotech space here," says Chandrasekhar, who hopes to eventually build a "biotech city" in Fargo. "He helps companies like Aldevron jump the gap from research to clinical development," says Chambers.

SURVEY METHODOLOGY

The Scientist posted a Web-based survey from September 8 to November 29, 2010, and invited readers who identified themselves as working in a commercial company to respond. We received 2,213 useable responses. We asked respondents to assess their work environment and experience by indicating their level of agreement with 43 criteria in 8 different areas. Respondents also indicated which factors were important to them.

To calculate a company's overall ranking, we first weighted each factor based on the average importance score. The overall rankings are based on the average score per institution for all factors weighted according to their importance. Detailed information on the survey methodology is available on *The Scientist* Web site at www.the-scientist.com. Our sample of scientists was self-selected, and we have made no attempt to standardize the results or to conduct detailed statistical analyses.

The survey was developed and responses were analyzed by *The Scientist* staff.

