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I WANT YOU FOR BIOTECH

Industry is in need of mid-level workers

To help with training, firms shower teachers with funding, supplies

[Bernadette Tansey, Chronicle Staff Writer](#)

Ellyn Daugherty had a plum assignment teaching gifted high school science students. But in 1994 she gave that up to create a pioneering biotechnology program aimed at drawing "the middle 50 percent" of kids into the high-tech field.

Daugherty belongs to a growing Bay Area network that is trying to lure thousands of ordinary people -- including children -- into a life they might never have dreamed of trying.

She's part of a benign conspiracy of educators, government officials and company executives who are getting the word out: Biotech wants you, whether you knew it or not.

The industry that began as the far-out brainchild of small cliques of brilliant Ph.D.s in the 1970s is now a mainstream business, with plenty of room for people who developed an interest in science late, or even reluctantly.

"Not only does the industry need those middle 50 percent, but those kids need something to get excited about," said Daugherty, now on leave from her job at San Mateo High School to write a textbook.

Biotech companies back her claim -- they're showering teachers at Bay Area schools and community colleges with used equipment, supplies, funding and technical aid to help train the mid-level workforce they need as they grow.

As an increasing number of experimental biotech drugs turn into marketed products, biotech firms must attract trained manufacturing operators, quality control specialists, record keepers, supervisors and other workers.

"As the industry matures, we're seeing more and more opportunities," said Frank Stephenson, who coordinates with school programs for Applied Biosystems of Foster City.

Some kids as young as 16 are starting their professional training at Bay Area high schools through biotech programs where they analyze their own DNA or perform bacterial cloning experiments. Many of these students head straight for a four-year college.

But others want a quicker route into the paid workforce. After a one- or two-year community college program costing as little as \$12 a credit, students are eligible to apply for entry-level biomanufacturing jobs that can pay \$30,000 to \$40,000 with benefits.

What's more, some biotech companies such as Genentech Inc. in South San Francisco cover the tuition of permanent, full-time employees who want to pursue college or graduate degrees as they work.

"Considering the cost of UC tuition, this is a wise choice for poor immigrant families," said George Cachianes, founder of the biotech program at Abraham Lincoln High School in San Francisco.

For those who missed the chance to participate in a high school biotech program, community colleges can be the starting gate. But even some high school classes are open to adults. Daugherty said 35 percent of the students in San Mateo High School's program are adults who come in through a county occupational training program. "They range from people who just graduated from high school to 60-year-olds," she said.

Working families in the Bay Area have significantly greater opportunities than those in the rest of the nation to gain a toehold in the industry that was founded here, said Cachianes. He counts 820 life sciences companies within commuting distance in the Bay Area. The region, which is internationally renowned for elite biotech programs at universities such as Stanford and UC Berkeley, also has perhaps the most densely developed network of secondary school and community college biotech education programs in the United States.

"Northern California is really a different case from most places," said Paul Hanle, president of the Biotechnology Institute. The institute, which fosters biotech education nationwide, was founded in 1998 by the industry's largest national trade association, the Biotechnology Industry Organization.

Back then, the organization's member companies saw a potential snag in the industry's imminent expansion, Hanle said.

"They were worried about the next generation not coming along to provide a workforce," he said.

Bay Area teachers like Daugherty were way ahead of them, establishing high school biotech electives in the early 1990s. Last year, the institute chose Daugherty to receive its first National Biotechnology Teacher-Leader Award, which came with a \$10,000 prize.

Daugherty said biotech teachers in the Bay Area have banded together to share ideas, equipment and other resources.

Now there are six regional organizations to support high school biotech programs, with help from companies, universities and charitable organizations. Those six groups, covering Marin County, the East Bay, San Francisco, San Mateo and Santa Clara counties, and independent schools, cooperate under an umbrella group called the Bay Area Biotechnology Education Consortium.

Those efforts dovetail with the community college programs, which in 1997 formed their own umbrella group, the California Community College Biotech Initiative.

The laboratories for these programs contain millions of dollars worth of equipment and materials -- most of it donated by companies rather than funded by the school systems.

"My whole budget for the entire year in biotech is \$600," said Daugherty. "We're raising close to \$20,000 a year to run our classes."

The same pattern exists at the community colleges.

"I wouldn't have a program if it weren't for company support," said Celeste Carter, director of the biotech program at Foothill College in Los Altos Hills.

Companies like Chiron Corp. in Emeryville and Applied Biosystems support industry fellowship programs that put teachers inside biotech companies for a summer or send them to the industry organization's annual convention. The Genentech Foundation recently donated \$2 million to create a biotechnology learning center at the San Mateo Library.

And company researchers teach classes, which can be a great opportunity for local students to meet a mentor or an inside advocate when they apply for jobs, said Carter of Foothill College.

In return, the schools are helping meet companies' specific needs.

Three Bay Area community colleges are modeling part of their biotech coursework to match the skills needed at Genentech manufacturing plants.

Carter said there may be some lingering preference among biotech firms to hire people with four-year degrees. But she said graduates of community college biotech programs are performing well enough to change that.

Genentech, the second-largest biotech company in the world, changed its hiring policies two years ago after assessing its experience with community college students, said senior staffing manager Monica Poindexter.

In 2002, Genentech helped Skyline College in San Bruno initiate a biotech manufacturing sequence tailored to prepare students for the kind of work done in the company's plants. The program was initially designed to help retrain airline workers displaced by the financial slump after the Sept. 11 terrorist attacks.

Genentech found that the community college graduates it hired stayed with their jobs longer than employees who had bachelor's degrees, who tend to move on sooner. The company now plans to hire one-third of new employees for its manufacturing operations from the community college pool, Poindexter said. Genentech, which aims to hire 1,500 people this year, also cooperates with Ohlone College in Fremont and Solano Community College in Fairfield on biotech programs.

Many survivors of the dot-com bust are retraining for biotech careers at the community colleges. Some people with higher degrees -- even doctorates -- pursue the programs to get hands-on lab training. Often, young students who start out with the goal of getting into the workforce as quickly as possible after a short community college program later raise their sights, Carter said.

"I find that people will work for a while and then come back to me and say, 'I need the next level of skills,' " she said.

The industry needs more than scientists and manufacturing workers, Applied Biosystems' Stephenson said. It needs business managers, illustrators and lawyers who have a basic understanding of biotechnology.

Cachianes said he enjoys seeing his former students spread out into the field -- and hopes they'll help train the next generation.

"I feel like I have a little army out there now," he said.

Genentech's Poindexter offers encouragement to those who wonder whether biotech really has a place for them.

"If they have a passion for saving lives and are interested in biotechnology, then they have the aptitude to develop the skill sets to obtain a position within the biotechnology industry," she said.

Paths to biotech

The Bay Area has plenty of inexpensive, accessible entry routes to biotech careers outside of four-year colleges. These organizations can help you get started:

-- Bay Area Biotechnology Education Consortium (www.babec.org) is a network of groups that support pre-college biotech programs. After checking your own school's offerings, check the organization's calendar for workshops and other opportunities.

-- California Community College Biotech Initiative (www.cccbitech.org) - - Find the colleges near you with biotech programs and career information.

-- Bio-Link (www.bio-link.org) -- Links to online courses, textbooks, career information, internship and job listings.

-- Northern California Biotechnology Center, City College of San Francisco, 50 Phelan Ave., San Francisco, CA 94112, (415) 239-3627.

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