

Finding greener pastures at home, Asian scientists leaving America

A growing number of biotech workers are now splitting time between San Diego and China.

By Terri Somers

UNION-TRIBUNE STAFF WRITER

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Changyou Chen grew up in the Chinese countryside, the son of farmers, dreaming of studying science at a big-city university.

Once he made it to Beijing, where he studied molecular biology and virology at China's prestigious Peking Union Medical College, Chen and his dreams turned to the United States, which he considered the premier place to earn an advanced science degree.

His government thought so, too.

In the mid-1980s, Chen was granted a passport so he could complete his undergraduate work at the University of Colorado. He was part of a massive wave of foreign students enrolling in U.S. universities, where some of Asia's best and brightest earned advanced technical degrees.

For years, these highly motivated foreign nationals stayed in the United States, working in high-tech industries and helping America remain a global leader.

But that has started to change.

Frustrated by stagnating federal funding for research and clampdowns on visas, Asian scientists are increasingly returning to their homelands. One-quarter of the 700,000 students who left China between 1978 and 2003 have gone back, China's Ministry of Education has reported.

Most of those left the United States recently, with more than 20,000 a year returning to China in the past five years, according to the ministry.

In countries with blossoming economies, such as China, South Korea, India and Singapore, governments have identified biotechnology and other high-tech industries as a way to expand beyond basic manufacturing. They are spending billions to underwrite companies, build high-tech parks and help startup businesses cut through red tape.

he trend has negative implications in the United States, which has already lost much of its high-tech manufacturing to outsourcing, said Greg Lucier, chief executive of Carlsbad-based biotechnology company Invitrogen. If foreign scientists continue to leave, the United States also could lose its lead in innovation.

“In the U.S., innovation is still our strong suit. But if we are not going to fund basic research so that we can have the infrastructure for great research and development in the private sector, we are mortgaging the future of this country,” said Lucier, who also is chairman of Biocom, the biotechnology trade group for Southern California.

Chen was supposed to return home two decades ago, but the 1989 Tiananmen Square uprising and government crackdown convinced him and his wife, Zhu Shen, who also works in biotechnology, that the time was not right.

But in 2004, Chen decided to start looking for a job because his employer, San Diego-based Targeted Molecules, was getting low on cash.

A friend who was running the Guangzhou Institute of Biomedicine and Health in Southern China recruited Chen to run the government-funded institute's antibody program, a prestigious post Chen doubted he could match in the United States.

Part of his thinking, he said, was that China has changed a lot since Tiananmen Square. Entrepreneurialism is again embraced. Biomedical research has been recognized as a priority for the country, where many people outside large cities lack access to health care. And China is becoming a global player in the industry.

“In China, I could get a better position because the Chinese respect what you learn in the U.S.,” Chen said. “Also, China is willing to provide you with a lot of initial resources, like grant money or a starting fund, so you can hire people and pick your projects.

“In China, there's a feeling of opportunity to hit it big.”

At the same time, Chen's wife was offered a position as head of business development for Immusol, a tiny, privately held biotechnology company in San Diego. After much thought, the couple decided to live apart on opposite sides of the Pacific Ocean and hope they will reap economic and professional rewards in a few years.

The same economic draw for returnees is happening in India.

An advertisement posted recently on an online job bank offered by Sabinsa Corp., a biotechnology company in Bangalore, India, sought someone to head its proteomics initiative, which studies the structure and ever-changing functions of proteins that play a central role in the life of an organism. The position paid \$100,000 annually, plus free housing and a car.

That salary in India would allow someone to easily afford a chauffeur, a maid and child care, said Deb Chakravarti, head of the proteomics program at the Keck Graduate Institute of Applied Life Sciences in Claremont.

India's economy is very strong, Chakravarti said. Money that 35 years ago was being spent on the military and agriculture is now available for other areas of India's economy, he said.

Government research funding is unlimited right now, Chakravarti said. Recruitment out of India is aggressive, and biotechnology is booming.

“Whenever someone goes home, they are asked to interview at several places,” Chakravarti said.

While talented scientists are attracted by plentiful funding in Asia, unreliable financing in the United States is driving them away.

Funding for the National Institutes of Health, which employs thousands of research scientists and distributes grant money nationwide to finance 34 percent of all U.S. biomedical research, has become a year-to-year proposition debated by Congress.

Between 1996 and 2003, Congress more than doubled NIH funding from about \$11 billion to more than \$25 billion. But since then, budgeted increases have fallen short of inflation, even as new research areas were identified to deal with bioterrorism after 2001.

Meanwhile, the rate of grant applications being approved by the NIH has dropped to about one in 10. After spending years earning advanced degrees, principal scientists find themselves waiting until they are 42 years old, on average, before they receive their first NIH grant.

U.S. companies bemoan the loss of workers who are now making competitors stronger. In the life-sciences industry, the trend is expected to continue unless the U.S. government begins to look at the funding of scientific discovery as part of a long-term economic strategy, said Jon Retzlaff, director of Legislative Relations for the Federation of American Societies for Experimental Biology.

Scientists in the trenches agree.

“One reason this country has been so strong for so many years is because of our advances in research, particularly health and life sciences, where we were so far ahead of everyone else,” said Shu Chien, a bioengineering professor at the University of California San Diego and member of all three U.S. national science academies.

“Somehow our leadership in the government has lost sight of that,” Chien said.

As head of medicinal chemistry for Roche Pharmaceuticals in China, Yun He, a U.S.-educated returnee, has seen firsthand what the Chinese government is investing in life sciences. Professors receive large research grants and are given funds and other perks to recruit more academics to return home.

He said the quality of research in China has been steadily improving, as evidenced by the increasing number of high-impact scientific journal publications coming out of the country.

After spending 16 years in the United States, earning his Ph.D. at Scripps Research institute in La Jolla and working at Isis, a Carlsbad-based biotechnology company, and the Genomics Institute of Novartis Research Foundation in La Jolla, He decided to become part of the entrepreneurial excitement in China. As a bonus, he is able to live in Shanghai, where he has relatives.

It is not just Asians who are leaving. Problems in obtaining funding have led some top U.S. scientists to jump at Asia's inducements.

Neal Copeland and Nancy Jenkins, a husband-and-wife team who were the top scientists at the NIH's National Cancer Institute, quit after 22 years and took jobs in Singapore.

Besides offering state-of-the-art facilities and equipment, the Singapore government has committed at least five years of funding to the research program at the Institute of Molecular and Cell Biology, which Copeland and Jenkins were asked to join.

“Now we are working in our dream lab,” Copeland said. “We're going to stay here till they kick us out, or we retire.”

Further frustrating the scientific community are limits on work visas for foreigners.

Temporary visas for immigrants with special skills, known as H1B visas, are limited to 65,000 a year, plus 20,000 visas for immigrants who earn advanced academic degrees in the United States. For the ninth year, the cap on applications for H1B visas was hit on the first day they were available for fiscal year 2008.

There is also an annual cap of 120,000 on the number of permanent residency green cards awarded each year.

A study published in August by the Kauffman Foundation of Kansas City, Mo., found a backlog of 1.1 million highly skilled immigrants and their family members waiting for green cards in 2006.

That has a dramatic impact on high-tech industries in the United States, said Vivek Wadhwa, a Harvard fellow who was the principal author of the study.

One-fourth of all patents filed in the United States are filed by foreigners, Wadhwa said.

“Those are the people we are sending back home, where they will compete with us,” he said.

Returnees are coveted employees because they bring with them the experience of working in U.S. industry.

Yu Liang Huang has the experience on both sides of the Pacific that Chinese companies wanted and U.S. companies are just now growing to appreciate. After pursuing postdoctoral work at Ohio State University, he worked for several years as a consultant to British and U.S. biotechnology companies trying to do business in China and, later, at the now-defunct San Diego bioprocessing company Egen.

But when Huang decided to start his own bioprocessing company, Generon, he did it in his native China.

The company licenses early-stage compounds out of U.S. companies or research institutes or forms strategic partnerships that allow the clinical development of the drug in China. The goal is to complete early clinical testing and then bring the drug back to the lucrative U.S. market.

Labor costs in China are cheaper than in the United States, and the local and central governments of China offer monetary support, help making necessary business connections and assistance in securing licenses and other needed approvals, Huang said.

“It is hard to get to this level in the United States,” the 45-year-old CEO said. “So right now we have to enjoy that advantage provided by China, and maybe later we can return to the U.S.”

Terri Somers: (619) 293-2028; terri.somers@uniontrib.com