

Regional Initiatives



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▼ Taiwan challenges itself to boost biotech sector

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An influx of government cash into Taiwan's biotechnology sector is expected to attract foreign firms, but some policy changes may be needed before the island's technology can develop efficiently.

Disappointment over a stultified biotechnology sector in Taiwan has led to a cabinet-level initiative to spin off companies from the island's research institutes. The "Challenge 2008" project, approved by the Executive Yuan (Cabinet) in January, could give an opportunity to foreign companies to take advantage of cheap, high-quality clinical trials and technologies whose potential, Taiwan's scientific leaders say, is overlooked by the island's venture capitalists.

The initiative aims to produce 15 "successful" companies, meaning a market value of at least NT\$2.5 billion (US\$70 million) each, by establishing 79 spin-off projects over the next six years. The program will pour NT\$9.4 billion (US\$270 million) for the first three years, and at least the same amount in the next three years, into projects that will develop technologies from the Industrial Technology Research Institute (Hsinchu), the Development Center for Biotechnology (Taipei), Academia Sinica (Taipei), universities, and other research institutes.

A significant portion of the new projects, for which the government will provide up to 45% of the start-up funding, will probably involve technology transfer from, or collaboration with, foreign companies, which can also use the project to establish branch offices on the island. Planners hope that continued investment as well as specific research strengths will make foreign companies take notice. Specifically, main attractions are expected to be clinical trial capacities (see "[Hospitals attract](#)") and the particle accelerator in Hsinchu, which is developing two high-throughput protein crystallography devices.

The plan appears to be working: Yua-Huei Wei, director of the life sciences division at the National Science Council, says that more than 30 biotechnology companies are already negotiating terms to move into Hsinchu or Tainan science parks. And in September 2002, computer giant IBM (Armonk, NY) set up a nonprofit regional supercomputer hub to link researchers in the island's large national programs in functional genomics, an area in which Academia Sinica and top universities will be collecting huge amounts of data. "We didn't see significant business in biotechnology yet, but we did see government commitment," says Spencer Wang, manager of IBM's Life Sciences Center of Excellence in Taipei.

Those trying to start companies or transfer technology within Taiwan are hoping the initiatives will make venture capitalists pay more attention to opportunities at home. Only an estimated 15-20% of domestic venture capital spent in biotechnology remains on the island. "Venture capitalists are used to short-term return in the electronics industry," says K.C. Lin, a principal investigator at a US-based biotechnology company struggling to start a drug discovery company in Taipei. Lin says that venture capitalists are frightened by the prospect of waiting 10 or 15 years for a return on their investments and prefer to invest in late-stage biotechnology companies overseas that are only a couple years away from completing an initial public offering.

Chi-Ming Liang, director of Academia Sinica's technology transfer office,



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Taiwan's leaders hope that new government investment will fill up science parks, like this one in Hsinchu, with biotech companies.

hopes the funds will pique interest in some of the 30 US biotechnology patents that Academia Sinica has produced over the past two years, ranging from lean transgenic animals to drugs for liver disease. "With the set up of these funds, Taiwan will have not only the ability but also the money to attract more specialists," says Liang.

Box 1: Hospitals attract

Many government and industry representatives praise Taiwan's ability to perform multiple, high-quality clinical trials as a major drawing point to attract foreign biotechnology firms to relocate on the island.

"Clinical trial capacities will definitely be used to attract foreign companies," says Chien-Jen Chen, vice chairman of the National Science Council. After recent upgrading, Taiwan's Center for Drug Evaluation closely resembles the US Food and Drug Administration (Rockville, MD) and a new regulatory framework should make foreign companies feel comfortable, says Chen. "Taiwan could be the clinical trial center for east Asia."

Jen Chen, general manager of biopharmaceutical Genovate (Hsinchu), agrees that clinical trial capacity is one of a few niche areas where Taiwan can develop. "Taipei has a higher concentration of hospital beds than anywhere," he says. Chen says the cheap cost of doing trials could make Taipei a place to continue trials that were found too costly elsewhere.

Some major players from the west have already spotted opportunity in Taiwan. Ellson Chen set up genomics-based biotechnology company Vita Genomics (Taipei) in March 2001. Building on his experience as a principal investigator at Celera (Rockville, MD), and access to Celera's genomic databases, he aims to bring his sequencing know-how to bear on locally prevalent diseases such as hepatitis. He is screening patients' DNA to look for clues into why some patients are curable and others are not. "This could keep a lot of people from taking harsh and expensive drugs when they won't be effective anyway," says Chen. Ease of clinical trials will become valuable later when the company tries to develop genomics-based therapeutics.

David Cyranoski, Tokyo

But is Taiwan ready? James Shen, director of Academia Sinica's Institute for Molecular Biology is optimistic about the future of Taiwanese biotechnology, but warns that Taiwan lacks infrastructure to handle the marketing and technical evaluation of biotechnology. He also says that restrictions on the involvement in industry by employees of government research institutions and universities could hamper successful technological development. For example, Rong-Hwa Lin made waves when restrictions on professors working in industry forced him to quit his prestigious post at National Taiwan University to begin AbGenomics (Taipei), a company specializing in therapeutic antibodies. Since then, some universities have eased restrictions, but scientists with a hand in both academia and industry are still rare. Shen says, "Biotechnology is a gray area here. The infrastructure and atmosphere must be improved quickly. This is a critical time for Taiwan."

The leadership might come with an expanded 'mega-fund' that Academia Sinica president Yuan-tseh Lee is promoting. By the end of the year, he hopes to expand resources for NT\$30 billion (US\$860 million). The fund will be assisted by 40-50 international advisors, with a large fraction of Taiwanese from home and abroad to help assess good biotech deal flows and investment opportunities. Lee says, "The goal of the fund is to strengthen our global competitiveness in biotech R & D and help establish a healthy development in Taiwan's biotech industry."

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