

## Chinese institute makes bold sequencing play

China's BGI has become the largest next-generation genome sequencing center in the world after it purchased 128 new HiSeq 2000 genome sequencers from Illumina. The deal was announced in January by Jay Flatley, president and CEO of San Diego-based Illumina, at the 28<sup>th</sup> Annual J.P. Morgan Healthcare Conference in San Francisco (Box 1). The announcement comes amid a boom of scientific productivity in China centered around next-generation sequencing technology, which has resulted in the publication of three landmark papers by Chinese researchers in the past two months alone: the sequencing of the cucumber (*Nat. Genet.* 41, 1275–1281, 2009) and giant panda (*Nature* 463, 311–317, 2010) genomes and the human pan-genome (*Nat. Biotechnol.* 28, 57–63, 2010).

BGI, which started life as the Beijing Genomics Institute but then moved to Shenzhen, China, will install most of the newly acquired Illumina sequencers at its new genome center at Hong Kong Science Park throughout 2010, says BGI executive director Jun Wang. "We will use these instruments to help build research and application platforms for sustainable development in agriculture, bioenergy, personalized health care and related fields in China."

The emergence of BGI as a sequencing powerhouse could have a significant upside

for Hong Kong's biotech sector. "Having the largest DNA sequencing facility in the world in Hong Kong will hopefully contribute towards attracting talent in genomics and bioinformatics and stimulate collaboration with other local research groups, such as those in the two medical schools," says Dennis Lo, director of the Li Ka Shing Institute of Health Sciences (LiHS), a translational medicine research institute of The Chinese University of Hong Kong (CUHK).

Lo, who is also associate dean for research of the Faculty of Medicine at CUHK, adds that the facility's international visibility might also "trigger more investment from the Hong Kong government and the commercial sector to develop biotech in Hong Kong." LiHS recently installed 10 Illumina Genome Analyzers, eight of which are part of a joint CUHK-BGI genome research center that intends to conduct collaborative "projects in the fields of cancer, diabetes and plant genomics," he says.

BGI's vice president, Xiuqing Zhang, also points to a deliberate international agenda. "BGI's investment in Illumina's new HiSeq 2000 system is an important step in our effort to develop a premier sequencing facility that serves scientists globally," he says. The HiSeq 2000 platform is capable of generating two billion paired-end reads and 200 gigabases of quality-filtered data in a single run, allowing

## IN brief

### Melanoma vaccine for dogs

A canine melanoma vaccine has received a full license from the US Department of Agriculture, the first therapeutic cancer vaccine approved for human or animal use. The San Diego-based Vical sees the approval of its DNA vaccine Oncept as an indicator of potential success for its human therapeutic vaccine currently in development for metastatic melanoma. Others are more cautious. "[It] is quite an achievement, but I don't believe that Oncept's approval has brought us any closer to a human therapeutic cancer vaccine, as researchers have seen cures in animal models of melanoma for quite some time," says Martin Bachmann, of Cytos, a company in Schlieren, Switzerland. Oncept contains a gene encoding human tyrosinase, an enzyme associated with skin pigmentation, which stimulates an immune response against canine tyrosinase in melanoma cells. "Canine melanoma is similar in disease course and spread to human melanoma, so the results could be relevant for predicting response in humans for a similar DNA vaccine. However, the study was not randomized, and it's hard to forecast how the human immune system will respond," says Christian Ottensmeier, a Cancer Research UK investigator at Southampton University. Oncept will be commercialized by Vical's licensee, Merial, the animal health subsidiary of Paris-based Sanofi-aventis. *Suzanne Elvidge*

### Biotechs go virtual

Outsourcing the early stages of R&D is a growing trend among young biotech firms in the UK, a new report reveals. Researchers at Cass Business School in London tracked 68 university and public service laboratory spin-outs as part of a larger Engineering and Physical Sciences Research Council (EPSRC) project on high-tech business organization. The study reveals that up to one-third of these firms have embraced an innovative 'virtual biotech' business model to help reduce the time taken to reach clinical trials and build up a pipeline of early stage products. According to Dzidziso Samuel Kamuriwo, the report's author, this business model has flourished among fledgling biotechs thanks to a combination of local policies that favor the industrialization of public science, multiple sources of funding and high-quality science conducted in public labs. The advantages of going 'virtual' include flexibility and few or no capital costs, which help slow cash burn (*Nat. Biotechnol.* 27, 886–888, 2009). Companies that adopt this virtual approach tend to outsource R&D to their founding institutions or to specialist service firms and are dependent on strong project management to succeed. The virtual model works best across several therapeutic areas, while the integrated model—keeping everything in house—thrives on fewer areas. In the long run, Kamuriwo points out, integrated companies are more likely to succeed, but after experiencing the short-term gains of the virtual approach, companies find it hard to change their organization model. *Susan Aldridge*



China's BGI, now in Shenzhen, has become Illumina's largest customer overnight.