

BUSINESS

Array of possibilities opens up in genotyping

The market for microarrays — chips designed to test biological samples for genetic content — is heating up, fuelled by their growing use as tools for genotyping, or pinpointing the genetic variations behind a predisposition to disease. And industry leader Affymetrix is manoeuvring to assert its dominance.

On 31 May the inventor of the gene-chip, based in Santa Clara, California, said it would purchase ParAllele, a San Francisco company selling genotyping kits that work with Affymetrix microarrays, for \$120 million.

Advances in preparing samples for microarray analysis are increasingly important to researchers who want not only to search whole genomes at one go, but also to target specific regions of them. ParAllele has specialized in this area since it was co-founded in 2001 by Ron Davis, head of Stanford University's Genome Technology Center, who also had a hand in Affymetrix's creation back in 1993.

ParAllele sells sample preparation kits that help researchers use microarrays to detect single nucleotide polymorphisms (SNPs), genetic variations where only one base-pair differs. Its best-known tool, the molecular inversion probe (MIP), allows for the screening of up to 20,000 genetic markers at once. Even more importantly, it enables researchers to customize panels of SNPs to target specific regions of the genome. Among other things, that will help geneticists study variations in disease susceptibility between groups of different ethnic origin.

"Technology has certainly been limiting," says David Altshuler, head of the medical and population genetics programme at the Broad Institute in Cambridge, a joint project of Harvard University and the Massachusetts Institute of Technology. "The scale of whole-genome studies is hundreds of thousands of SNPs in thousands of individuals, and that simply hasn't been technically or financially approachable until this year."

ParAllele chief scientist Tom Willis describes the takeover of the company he helped found as a "bittersweet" moment. "Every successful start-up, I imagine, has a belief in its vision that must border on the irrational," he says, adding that ParAllele never intended to compete fully by building its own microarrays. "It just made sense to partner with Affymetrix," he says.

IMAGE
UNAVAILABLE
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REASONS

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Group dynamic: ethnicity may play a role in disease.

ParAllele's decision to sell out to its larger rival reflects a general trend for biotechnology companies, says San Diego-based industry analyst John McCamant, editor of the *Medical Technology Stock Letter*. The Santa Clara company is now "the 800-pound gorilla in the room", says McCamant, noting that competitors — such as San Diego-based Illumina — may have to reconsider their options.

But Illumina, whose technology uses fibre optics embedded in glass beads to detect SNPs, says the deal came as no surprise. "We don't think the competitive dynamic will be very different" as a result of it, says Jay Flatley, its chief executive.

Affymetrix sales in 2004 were \$345 million, and its stock held steady at \$52 on the acquisition announcement, valuing the company at about \$3.3 billion. Illumina, which was founded in 1998, had sales last year of around \$50 million. Its stock has doubled in value since its February acquisition of a rival bead array maker, CyVera Corporation of Connecticut.

Biologists, meanwhile, expect that rapid technical progress in the sector will continue to provide them with better tools. Given Willis's assurance that key scientific staff will stay on at Affymetrix, Thomas Hudson, a geneticist at McGill University in Montreal, expects their development work to continue apace.

Richard Gibbs, director of the Baylor College genome sequencing centre in Houston, Texas, predicts a burst of activity in disease-gene discovery. "Technology is not the bottleneck any more," agrees Greg Yap, an Affymetrix vice-president for marketing. ■

Virginia Gewin

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IN BRIEF

AIDS VACCINE DUO The New York-based, non-profit International AIDS Vaccine Initiative (IAVI) is to partner pharmaceutical giant GlaxoSmithKline in an effort to develop an AIDS vaccine.

The partners say they will pursue a vaccine based on an adenovirus, which is stripped of its infectious genes, focusing on those that naturally infect chimpanzees. Previous vaccine candidates have been based on adenoviral vectors that infect humans.

Neither party will disclose the cost of the collaboration, but it is expected to run to several million dollars and is seen as an important step in establishing new avenues in the search for an effective AIDS vaccine.

PATENT AVALANCHE Political uncertainty surrounding the future of embryonic stem-cell research isn't preventing a veritable rush of patenting activity, a survey of the biotechnology industry has found.

Marks & Clerk, a London-based consultancy, says that patent filings related to stem cells rose by four-fifths between 2000 and 2004, during which time more than 3,000 patents were filed on stem-cell technology worldwide.

Despite restrictions on government funding for embryonic stem-cell research, US patents outnumbered those filed in the three next most active countries — Australia, Britain and Japan — by four to one.

EASTERN TIE-UP Tokyo-based Gene Networks International said on 20 June that it will acquire Shanghai Genomics, a Chinese start-up company that is developing a drug to treat fluid build-up in the lungs.

The Japanese company said that the cross-border acquisition — the first venture of its type by a Japanese biotechnology company in China — will enable it to combine research in both countries with drug development in China, where clinical trials are faster and cheaper.

The combined operation will have about 100 employees, and hopes to raise money in the future through a public share offering in Japan.