

Bringing up the "world's largest sequencing center"

The Next Competitor

While everyone in the genomic sequencing world is staring, magnetised, at Pacific Biosciences' SMRT™ technology (see story in *Lab Times* 5/2009, page 46), another competitor has positioned itself nearly unnoticed. Complete Genomics (CGI), a Californian start-up, raised an equivalent of €32 million in July in its fourth funding round. The firm intends to build "the



The Sanger Centre in Hinxton (above) faces a new sequencing rival in Complete Genomics (small picture: CGI's Clifford Reid).

world's largest commercial human genome sequencing center" (to be erected soon in Silicon Valley, USA). At present, the Wellcome Trust Sanger Institute (WTSI) in Hinxton, UK, tops the list of the most powerful sequencing facilities, with an output of around 10 billion bases of raw sequence data per day (see photo).

According to Clifford Reid, CGI's president, the funding was delayed six months, due to the world economic crisis. His company is now planning, Reid told *Bio-IT*, "to launch the commercial genome centre before January [2010] and scale up to 10,000 human genomes in 2010". Reid added that, "compared to the number of ge-

nomes sequenced in the world today – maybe a dozen? – 10,000 is an industry changer." For large customers, CGI is aiming for a price of \$5,000 per genome (equivalent to €3,500); while other customers will have to pay \$20,000 per genome. At present, the minimum price to sequence a whole genome is about \$50,000 (€35,000).

CGI is not intending to invest in science and technology but to focus on commercial-scale sequencing, Reid emphasised, conceding that his company's timing wasn't very smart, "We started our raise on the day that Lehman Brothers failed." -WK-

Austrian Nabriva cashes €15 million

Assistance against Resistance

Vienna-based Nabriva Therapeutics, a developer of novel antibiotics, has succeeded in prising €15 million from the pockets of five prominent investors. Nomura Ventures, HBM Partners, the Wellcome Trust, GLS Ventures and the Novartis Venture Fund are helping to bring Nabriva's total VC aid to €57 million since its foundation in 2006 as a spin-off of Novartis' subsidiary Sandoz. The Austrians develop pleuromutilins, a new class of antibiotics for serious infections caused by resistant pathogens. These, according to Nabriva, "unique antimicrobial compounds interfere with bacterial protein synthesis via an interaction with the 23S rRNA of the 50S bacterial ribosome subunit". Currently, the company has three product candidates in clinical phase I trials.

Pleuromutilins, however, are not as new as Nabriva's marketing department pretends. This "new" antibiotics class has been used for many years in cattle breeding – an awkward truth which Nabriva would prefer to ignore. -WK-

Micromet's big deal starts small

Big Fisherman

After years of trawling dozens of potential buyers for its cancer fighting antibodies, Micromet has finally found an interested party. Being France's Sanofi-Aventis itself, it's a very prominent one. Micromet, whose headquarters are located in Munich, Germany, closed a huge €320 million deal with the pharmaceutical giant this October. This sum sounds lavish but Micromet will have to earn it with a lot of hard work. The Germans are to develop a species of antibody that targets a defined antigen on the surface of carcinoma cells and activates T cells that destroy the morbid cells thereafter. If successful, Sanofi will continue the antibody's development after a completed Phase I clinical trial.

While starting small, the Sanofi deal offers Micromet the chance to make plenty of money. After receiving an upfront cash payment of €8 million, there are development and regulatory milestone payments of up to €162 million to earn, plus performance-based sales milestones of up to €150 million as well as royalties on worldwide product sales.

Micromet, with facilities in Bethesda, MD and Munich, develops antibodies that work by bispecific binding, commonly known as "BiTE" molecules. These antibodies have been shown to link

the body's cytotoxic T cells to tumor cells, ultimately inducing apoptosis in the tumor cells. According to Micromet, BiTEs are functional "at very low concentrations," due to the fact that T cells start to proliferate through the killing process, leading to an increased number of T cells at the site of attack.

After a partnership worth €70 million with Tracoon Pharmaceuticals (San Diego, USA) in 2007 for the successful development of a promising therapeutic against cancer, followed by a private €27 million financing round, Micromet had to bear a severe setback this

year. Its "wonder molecule", MT201, a monoclonal antibody that recognises EpCAM epitopes that are expressed on almost all carcinomas, offered a disappointingly slight effect against breast and prostate cancer. -WK-



A BiTE antibody triggers T cell action (the T cell attacks by releasing cytotoxic perforins that punch holes in the tumor cell; injected granzymes then induce apoptosis).

Layoffs at 23andme

Google's Plaything in Distress

Not every newfangled stuff sells well, not even with Google behind you. Take 23andme, the personal genomics shop from the Big Apple. Co-founded by the wife of Google's Sergey Brin, Anne Wojcicki, 23andme offers, propaganda alert!, "the most comprehensive at-home DNA test". For €270, customers can analyse their own risk of contracting 119 diseases or examine their ancestry.



Photo: 23andme

While Anne Wojcicki's little plaything attracted enormous media interest – the "Retail DNA Test", invented by 23andme, was selected as *TIME* magazine's "Invention of the Year" in 2008, for example – her company's business model and profitability has been questionable since 23andme's inception in April 2006. Recently, the sceptics' doubts were confirmed. This autumn, 23andme will fire an unspecified number of staffers. While a spokesperson lays the blame on *force majeure* ("These cuts are a reflection of the current economic environment"), many think that it will take at least five years before personal genomics, a science still in its infancy, will boom.

2014, however, would be far too late for 23andme. -wk-

Proximagen, Evolva prepare for takeovers

Mergers under Progress

Proximagen is definitely on the home stretch in its acquisition of Cambridge Biotechnology (CBT). In 2008, the neuroscience research company from London, UK, acquired €56 million in fundraising to snap up other biotechs that are also focused on diseases of the brain and the central nervous system. CBT, with its 25 employees and a phase II compound for treatment of chronic pain in patients with diabetes, would be an adequate candidate and, let's not forget, it is for sale: Parent company Biovitrum (Stockholm) announced plans earlier this year to create a company spin off.

Another takeover will soon take place in Switzerland. After having finished a €18.5 million fundraising effort in October, Evolva is going to prepare for its merger with Arpida. Both companies are located in Basel and develop mostly antibiotics, antivirals and antifungals. After a failed approval of a drug to treat skin and tissue infections caused by antibiotic-resistant bacteria, unfortunate Arpida saw its share price diminish dramatically last winter. The fusion with Evolva could be a lifesaver, planned as a reverse merger that allows the previously private Evolva to go public without filing an IPO and to raise fresh capital without much fuss. -wk-

Milestone payment for Denmark's Genmab

Rituxan's Rival Approved

Genmab (Copenhagen) has bagged a €16 million milestone payment from GlaxoSmithKline (GSK). The money is in payment for the FDA's approval of the monoclonal antibody Arzerra (Ofatumumab) for chronic lymphocytic leukemia (CLL). In 2006, GSK closed a €1.4 billion contract with Genmab for the full rights to Arzerra (in clinical phase III trials at the time). After its EMEA approval for Europe in February this year, the therapy was approved in the US this October, too, marking the first approval for one of Genmab's antibody programmes.

Arzerra attaches to the CD20 phosphoprotein that is highly expressed on the surface of both normal and malignant B cells. When bound by an antibody, CD20 sends a signal across the membrane, finally leading to the cell's destruction. Profitable monoclonals like Rituxan (marketed by Biogen, Genentech and Roche) and Treanda (marketed by Cephalon), use the same target and mechanism to attack leukemia. These companies now face a dangerous rival for their own therapies in the shape of Arzerra.

The new antibody hasn't always pleased its developers. A phase III trial of Arzerra for non-Hodgkin's lymphoma provided unsatisfying results in 2008, causing expectations of another GSK milestone payment to evaporate, while its shares plummeted by 30 percent. -wk-