Biotech start-up brings DNA-sequencing to the medical market

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What started back in 2004 as a three-person start-up may well be on its way to becoming a multi-million euro success story. Advanced by a team of young Dutch scientists pushing disruptive biotech innovations onto the market, the SME FlexGen is attracting the attention of some key investors and demonstrating the added value that public support can offer to innovative SMES, with the Eurostars funding programme leading the way.

The dynamic Netherlands-based company specialises in the sequencing of the human genome. Nothing new so far, as a complete mapping of human DNA was achieved in 2004. FlexGen was created the same year and, since then, the original founds have gambled on a few emerging trends that may well lead this start-up to become a benchmark in the field.

For the past few years, FlexGen has been leading a consortium formed together with the University Hospital of Leiden in the Netherlands and Molecular Stamping, an Italian SME created by MIT scholar Francesco Stellacci. The group worked on a project called 'Arrayvolution', developed under the auspices of Eurostars, the first European funding programme to be specifically dedicated to research-performing SMEs.

The results of the project are already being applied in Europe, the United States and Canada. By rapidly and cheaply analysing the genomes of large populations, the technology helps to find the genetic cause of diseases and studies the reaction of the human body to different types of

treatment. Thanks to those findings, it is possible to better understand the causes of a malady and to better adapt medical prescription to the patient.

An untapped potential

Arrayvolution takes an innovative approach to genetic sequencing. Previously, most efforts in the field concentrated on sequencing an entire human genome: a cumbersome and costly procedure. As a consequence, DNA analysis has been for a long time the privilege of laboratories oriented towards academic research, moving further away from the original vision of bringing a genetic revolution to medicine.

Gambling on the fact that there was already a market looking for a solution, the team decided to develop a procedure to uncover the secrets held by very specific portions of DNA. Rather than making rough scans available to an elite of scientists, the idea was to aim for precision and to provide labs with the material necessary to make their own genetic analysis. The gamble paid off. Non-existent just five years ago, the DNA-sequencing market now has an estimate worth of one billion euro per year.

Main customers are hospitals, where clinical geneticists are using DNA-testing on large populations to understand the effects of diseases and medication on the human body. Some of FlexGen' s customers also specialise in personalised medicine – a type of therapy born of the idea that treatments can be adapted to different people, based on their DNA profile. Another category of buyers, pharmacogenetic specialists, rely on the same idea taken to a larger scale: getting a range of products ready for a specific part of the population.

Another mind-set

FlexGen is originally a spin-off of the Leiden University Medical Centre of the Netherlands. 'The first customers were the scientists of the university itself, who were looking for alternatives to the contracting third-party laboratories for the analysis of genetic material,' says Joop van Helvoort, FlexGen's Chief Scientific Officer. 'This took on average eight weeks!' After three years, once the technology was up and running, the company then needed to reinvent itself in order to increase its customer base.

Fred Dom joined the company as chief executive officer in 2007, with the objective of 'raising additional financing for FlexGen and pushing it onto the market'. He brought a new philosophy to the company. 'We were at first providing the same technology to whichever customer wanted it, but we realised they needed to have a strong technological background to make it meet their needs,' says van Helvoort. 'The idea now is to provide an application that works straight off the shelf but adapted to the precise applications required by each customer.'

After attracting its first private investor in 2007, FlexGen now counts in its supervisory board a major venture capital group, a bank and a number of biotech-specialised investment firms. But while looking for private investors, one of Fred Dom's first moves was also to secure funding from public sources.

The Eurostars Programme rapidly presented itself as one of the best options, helping to cover around 50% of the required financing. 'The fact that we had the backing of a European programme helped us to get the rest of the money from investors,' says van Helvoort. 'It is important that the European Union helps SMEs, especially during the riskier stages of their development', adds Jaap Blaak, a private investor who has been supporting the company since the very beginning.

Aiming big but remaining small

At this stage of its business development, FlexGen has chosen to stay small. 'With the kind of technology developed, we need to have a close relationship with our customers, so that we understand their needs and can best explain the functioning of the equipment,' says Dom. 'A big distributor would not be able to give them this kind of attention.'

The team is now planning a product launch at a much a large scale and is already working on new technologies to introduce to the market, reinventing itself yet another time. The focus, however, will stay on genetics. Fred Dom believes that genetic sequencing is the key to fundamentally understanding diseases. 'We can now look at the cause of the disease, not only the symptoms, ensuring that every patient has the best possible treatment.'

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