Every time a child takes an antibody-based medicine like a vaccine or a diabetic injects insulin, they are using biopharmaceuticals: medicines manufactured by living cells inside what is called a bioreactor. A Eurostars project is about to revolutionise the pharmaceutical sector with the introduction of a new generation bioreactor.

Traditionally the biotech industry used reusable glass or steel bioreactors to manufacture biopharmaceuticals. The required cleaning and sterilizing of glass and steel is a costly process. This has led to the introduction of disposable, pre-sterilised bioreactors. Some estimates show cost savings of up to 30% with disposable systems compared to reusable stainless steel bioreactors. As a result disposable bioreactors are now a big business.

It is estimated that the single use bioreactor market will be worth close to $1 billion within a few years. “These medicines are expensive,” says Per Stobbe, MO of Stobbe Tech in Denmark and participant in the Eurostars Glucocell research project. “A treatment could cost from thousands up to €50,000. In these bioreactors there are millions, billions of cells kept in suspension in this glucose containing media producing the medicine over typically a week.

A commercial success
Stobbe Tech manufactures disposable bioreactors marketed through its daughter company Cercell. C-CIT manufactures biosensors. The two small companies teamed up for EUREKA Eurostars project Glucocell in order to design a new generation of C-CIT’s disposable biosensors, which would work within Stobbe’s bioreactors. “We developed single use sensors for disposable bioreactors for the continuous measurement of glucose in cell cultures,” says Stefan Spichiger, the general manager of C-CIT in Switzerland.

The idea of being able to configure a single-use-bioreactor is very unique. We are the only one who offer this on the globe.

A major product innovation emerged from the 18-month project: the world’s first customisable disposable bioreactor. “There are only four manufacturers from around the globe for this type of Single-Use-Bioreactor and we are one of the four,” says Stobbe. “The three others only make one product. Take it or leave it. The idea of being able to configure a single-use-bioreactor is very unique. We are the only one who offer this on the globe. This is also part of what we developed during the Eurostars project.”

The Glucocell project has been a huge commercial success for both the Swiss and Danish SMEs. “We have been selected as a supplier to 10 of the largest manufacturers around the globe,” says Stobbe, “and that is pretty cool as we are a small company. The potential for us is that we can double our employees and turnover many times.” Stobbe Tech has already tripled its workforce and turnover since the project began.

“We expect changes in the whole business structure,” says Spichiger. “It will for sure have a huge effect on the turnover and I would expect that by end of 2014 we may have to hire new people in the laboratory.” C-CIT also landed an investment of CHF1 million (€820,000) late last year, most of which will be used for marketing the new disposable biosensors.