

# A spin-off for high-tech cell culture from the Baltic Sea coast

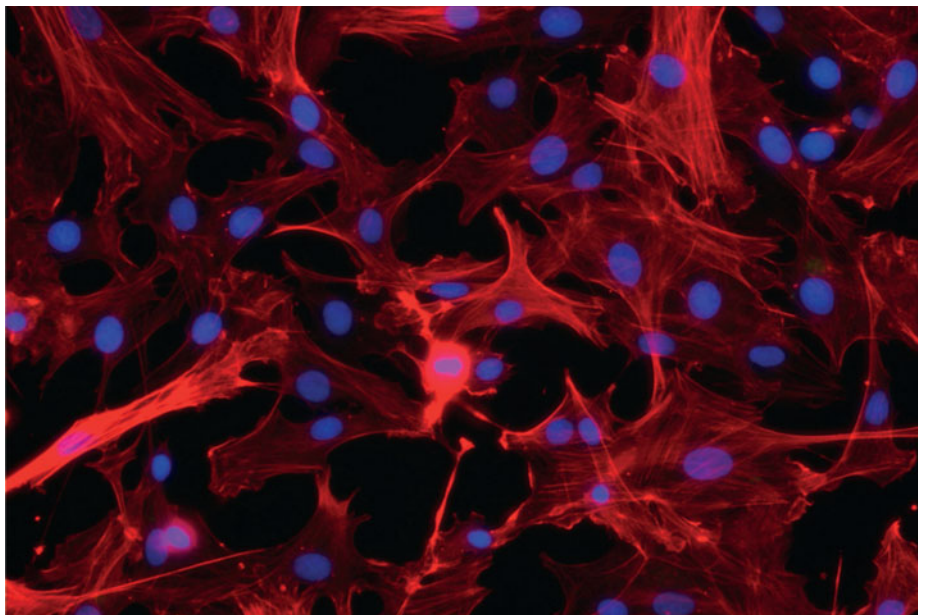
CellTec Systems GmbH: Development of innovative cell culture systems for the production of artificial, animal cells

The number of consumers who do without natural animal products or want to do without them in the future has increased enormously in recent years. Demands for more animal welfare, increased health awareness and the desire for more climate protection are the reasons for this. This growing market is already being met with a variety of plant-based animal substitutes. Meat grown in laboratories from cell cultures is also no longer science fiction. However, its production is still far too expensive and for the most part does not yet meet customer demands for taste and texture. The Lübeck-based start-up CellTec Systems, however, now promises a remedy by developing innovative cell culture systems. **By Urs Moesenfechtel**

**A**lthough artificially produced meat has been researched and developed for years, a broad market penetration of corresponding products has so far failed. The cultivation of animal muscle cells in a nutrient medium is too time-consuming and expensive. Not to mention large-scale implementation. The Lübeck-based company CellTec Systems could be the decisive game-changer in the near future.

Its vision is the multiplication of almost any cell. The range of possible products would extend far beyond that of food like cultured meat. The production of sustainable and animal-friendly alternatives to animal feed, pharmaceutical products, artificial tissue, healing aids, but also materials such as leather, hormones, enzymes or proteins for antibody testing systems would also be conceivable. In any case, the worldwide growth in the consumption of these materials is enormous.

“Cell-based production processes make it possible to tap an enormously effective and flexible source of raw mater-



Isolated and stained bovine cells in cell culture (cell nuclei: blue, muscle protein: red)

Illustration: © CellTec Systems

ials. Many tonnes of cell mass can be produced from a single small cell, for example, without having to kill a single extra animal,” says CEO Prof Dr Charli Kruse. After an intensive career in science, during which he worked for almost two decades as managing director and head of a Fraunhofer facility, Kruse is now venturing into the cell technology market as an entrepreneur with a team with many years of experience and a laboratory location near Lübeck University.

## Customisation and scaling are intended

CellTec Systems wants to be the first full-service provider in Germany to cover the entire value chain for industrial cell technology. Cell cultures are to be developed and optimised on behalf of customers, and the associated production and processing methods are to be made available. In the coming years, the main focus will be on the further development of a cell proliferator. This is a bioreactor specialised in

### SHORT PROFILE OF CELLTEC SYSTEMS GMBH

**Foundation:** 2022

**Company headquarter:** Lübeck, Germany

**Sector:** Biotechnology

**Employees planned for 2023:** 20

**Internet:** [www.celltec-systems.com](http://www.celltec-systems.com)

the proliferation of cells in large quantities, which is based on various patents of the company. Scaling steps are also planned, which in the final result should make it possible to realise production containers of up to 25,000l. In this way, many tonnes of cell mass should be sustainably produced annually with a single plant. The company's technology allows to produce long-lasting cell cultures from a wide variety of farm animals without genetically modifying them. It is based on the fact that adherently growing cells permanently require new surfaces. The technology ensures this by packaging the cells in three-dimensional hydrogel capsules, which are automatically expanded depending on the rate of proliferation. This process is scalable as desired, as the cells always remain in their microenvironment of the respective capsule.

### Complexity of cell cultivation results in high investment costs

"Since precise cell multiplication is already required in many areas today, we also want to produce defined cell quantities for different industries on our plants on behalf of our customers. In addition, there is hardly any knowledge about this area of biotechnology in industry," says Dr Henning Hach from CellTec. "However, CellTec Systems does not only want to produce



CEO Prof Dr Charli Kruse in front of the CellTec Systems GmbH branch office at the Lübeck harbour

Photo: © Prof Dr Charli Kruse

cells itself. We also support other companies in their projects with consulting, training and conceptual and operational support for the operation of our systems. The first such customer projects are planned for 2023."

The special thing about industrial cell cultures, apart from their high complexity, is their enormous investment intensity. From the very beginning, therefore, the company sought to find a partner who, in addition to sufficient financial resources, also shared the company's vision in order

to want to make a long-term commitment. With the FML Family Foundation, which is part of the world's leading network supplier Rittal, CellTec Systems was now able to find this anchor investor and finally also co-founder. FML initially invested 4 million euros in CellTec Systems. In addition, in-depth talks are already being held with other investors. One investor has acquired a property in Lübeck for the company and is converting it according to its wishes.

### The goal: conquering new worlds in the field of cell technology

"The vision in front of our eyes, the experience in our hands and our own personality as a guideline, shaped by our environment and experiences – that is what we bring with us. One thing we know for sure: if the time has come to conquer new worlds in the field of cell technology, it is now! We are banking on the fact that soon the industrially cultivated cell will be synonymous with agriculturally produced meat or plant products. And we want to become the first German full-service provider for industrial cell technology and cell propagation," says Kruse.

At the moment, the company is looking for cooperation partners for the further development and marketing of the bioreactor, for the mass production and marketing of food and feed products, for the production and marketing of products for the cosmetics and chemical industries or for cell masses for the production of vaccines and antibody test systems. ■



Photo: © CellTec Systems GmbH

Experimental set-up for the investigation of bioreactor processes