

# Scaling-Up Strategies for Cultured Meat Production



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## Organoid Farm Inc.

Our company was established on November 29, 2021, as an in-house startup project of our parent company, JGC Japan Corporation, with the goal of commercializing cultured meat, a meat alternative produced by culturing animal cells. Our company operates within Shonan Health Innovation Park (Shonan iPark), one of the largest life science research facilities in Japan. JGC Japan Corporation is a Japanese industry-leading engineering company, and we aim to achieve commercial production of cultured meat rapidly through the use of our parent company’s cell culture upscaling technology.

## Social issues

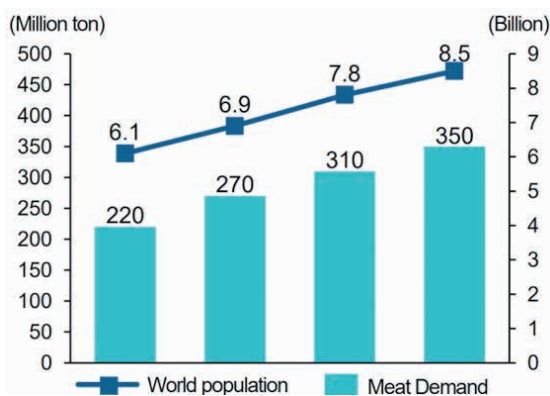
It is predicted that the population will continue to increase until 2050, and that the demand for meat will also increase linearly. On the other hand, resources such as land and water are already under strain, and given the environmental burden, the supply of resources is insufficient with conventional livestock farming alone. In recent years, the safe production of livestock is also under threat from

events such as climate change, epidemic infectious diseases and disruptions to the feed supply network. Since cultured meat is a possible solution to these difficulties, we have been pursuing technological development aiming at mass production of cultured meat.

## Issues with cultured meat

At present, many companies working on the development of cultured meat focus on the approach of aiming for a product that is as close as possible to existing meat products. However, no company has achieved efficient production of cells that can be used as materials for cultured meat. Because of this, we can capture a share of the future upstream cultured meat market by focusing on mass production of cells that can be used as the raw materials for cultured meat. From the perspective of mass production and cost reduction, upscaling will be essential for making cultured meat available to society. Upscaling can be achieved by providing the cell strains for producing cultured meat and culturing processes that we are developing, combined with the plant engineering technology of our parent company JGC Group.

Changes in world population and meat demand



Source: OECD-FAO, Agricultural Outlook 2021-2030, United Nations, World population prospects 2022

## Current development status

We are focused on developing efficient culturing processes for bovine cells, and on investigating upscaling from the lab scale to the bench scale. The reason for this focus on bovine cells is because there is an opportunity for market entry while cattle are the livestock with the highest environmental burden, and globally, technology for mass producing bovine cells has not been established. From the perspective of reducing production costs, we are pursuing development with the aim of creating seed cells with high culturing efficiency, and associated culturing methods. By



Illustration depicting cultured meat production factory

utilizing the technology possessed by the JGC Group, including technology relating to cell culturing (such as high-precision control technology for culturing conditions and computational fluid dynamics analysis) and engineering technology for optimizing production processes, we can rapidly establish mass production technology for cells. As we have the target of starting commercial production of cultured meat in 2030, our companies are working in collaboration with the aim of starting operation of the first pilot plant in Japan for cultured meat production, capable of pilot production with tanks with capacities of thousands of liters in around 2027.

## Future outlook

For the future, we are looking towards expansion of our



Illustration depicting cultured meat products

business, including application of our technology to other animals such as chicken, pigs and fish, and providing our cultured food production processes to other companies, using the range of know-how accumulated through our research and development. As mass production technology for animal cells can be also applicable to regenerative medicine and pharmaceutical manufacture, there is a wide spectrum for future business expansion. Furthermore, since JGC Group has a track record of constructing plants around the world, we will use this network to enable global deployment of cultured meat factories. We, Organoid Farm Inc., are dedicated to realizing a new option of 'cultured meat' for society, under the principle of 'Unwavering Efforts for a Happier World on Earth.' This serves as a sustainable global solution for food production, ensuring safety and security. Amidst the numerous challenges we face, we seek partners for advancing together through global collaboration. We look forward to hearing from potential partners intrigued by our initiatives.



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