

TECH OFFER

Plant-based, Edible 3D Scaffolds and Microcarriers for Cultivated Meat and Seafood



KEY INFORMATION

TECHNOLOGY CATEGORY:

Chemicals - Polymers

Foods - Ingredients

Foods - Processes

TECHNOLOGY READINESS LEVEL (TRL): **TRL5**

COUNTRY: **UNITED STATES**

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OVERVIEW

Scaffolds and microcarriers are the enabling technologies to support higher cell densities in cultivated meat and seafood development. There are currently different types of microcarriers available for cultivated meat. However, many of these are mostly made of animal-derived materials, non-edible materials or with low surface volume ratio.

This technology offer is an edible, 100% plant-based microcarriers and scaffolds.

The microcarriers and microbeads allow cells to proliferate and enhance the density of cells within a bioreactor. On the other hand, the scaffolds help those proliferated cells to differentiate as well as provide structure and texture for different cuts of meat.

The technology is available for R&D collaboration and IP licensing, with partners that are working in the cultivated meat, seafood

and dairy industry.

TECHNOLOGY FEATURES & SPECIFICATIONS

Microcarriers

The microcarriers are composed of various edible plant-based proteins and polysaccharides and are formed into small microbeads in the range of a few hundred microns in diameter. These microbeads are modified to allow for muscle and fat cells to attach to the surface. These microcarriers can be customised to contain specialized proteins or protein blends or hold special nutrients or other desired biologic molecules.

Furthermore, the microcarriers can be introduced into downstream processes such as differentiation scaffolding and 3D printing without removal of cells.

Scaffolds

The scaffolds are made of edible and food-safe materials. They can be customised to support cell adhesion and differentiation. Additionally, the alignment of the fibers and its stiffness properties can be modified. Hence, it will help to achieve the desired consistency and appearance of the meat cuts.

POTENTIAL APPLICATIONS

The technology offer consists of microcarrier and scaffold that are uniquely positioned to accelerate the rate and quality of cultivated meat production across a wide variety of meat types including crustaceans, fish, chicken, beef, pork, and more. The microcarriers are designed for usage in most suspension and dynamic culture systems; the scaffolds are designed for partners looking to create structure and cohesion in their cultivated meat products.

UNIQUE VALUE PROPOSITION

- The microcarriers and scaffolds are completely edible and animal-component free
- The nanofiber scaffolds and microcarriers are customisable into different parameters for cell line applications
- The facility is undergoing FDA certification to ensure compliance for the production of food-safe materials