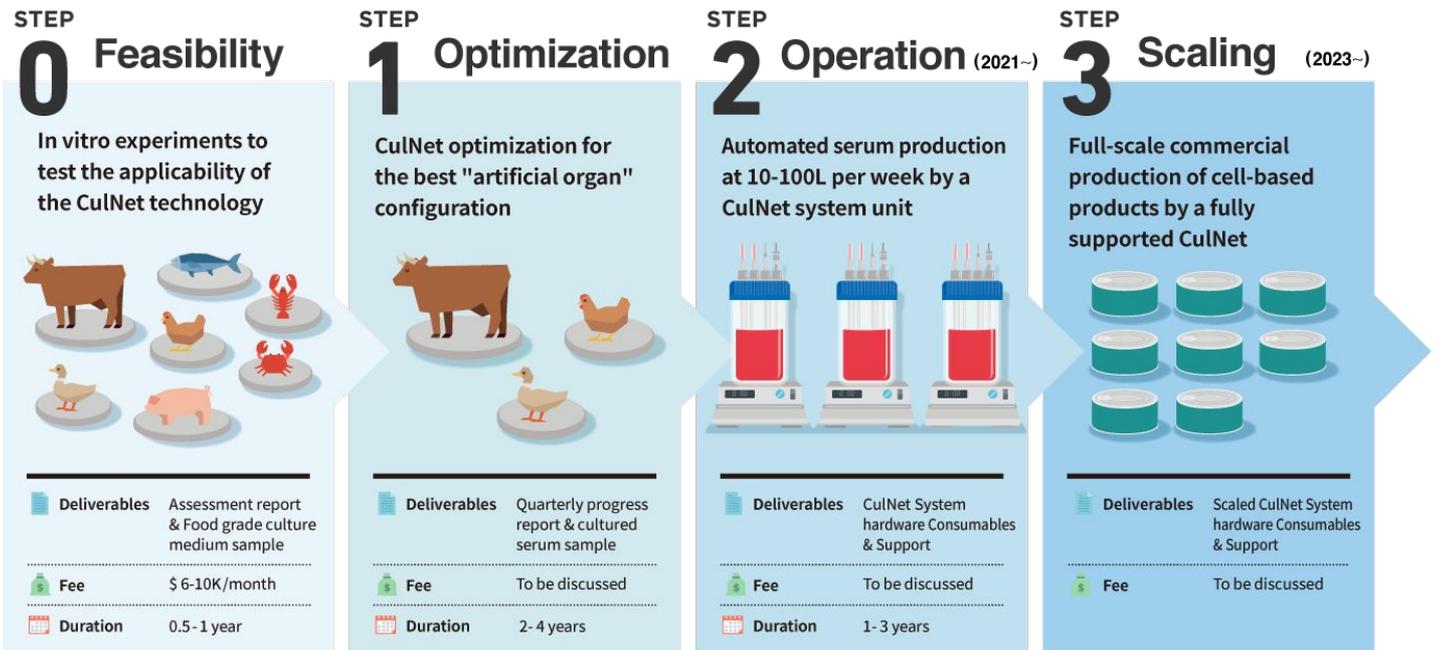


CulNet Pipelines

(Cellular Agriculture Enterprise Solutions with the CulNet System)

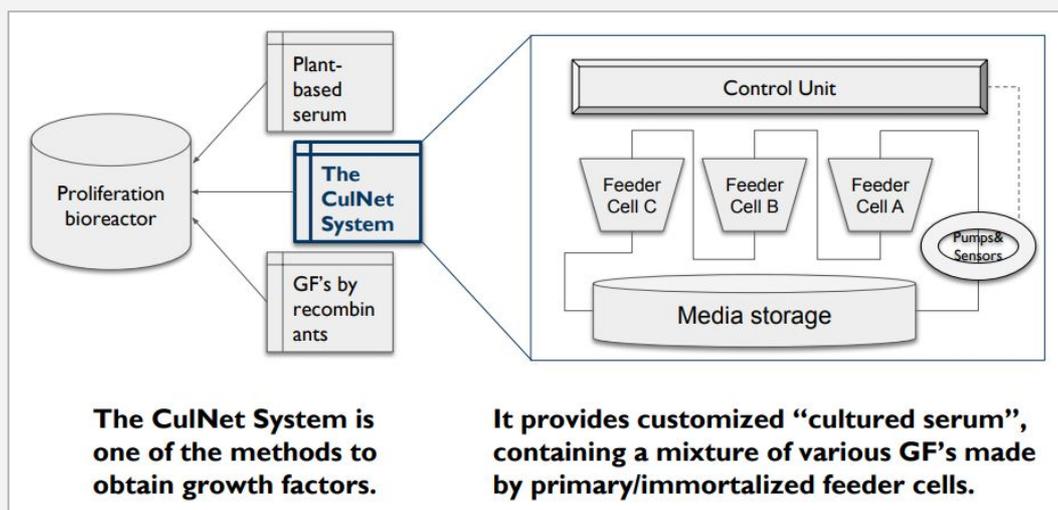


Overview of the CulNet Pipeline

The [CulNet® System](#) is a versatile cell culture platform technology designed for a wide range of cellular agriculture (animal cell-cultured) products such as food and materials. The CulNet System is capable of culturing cells of any types and species without external addition of growth factors or immortalization of the starter cells. In scenes of cell-based meat production, the system can function as the source of “cultured serum” that can replace expensive growth factors. In some countries and regions, these features make food products from the system legally marketable within the existing regulatory framework.

We offer this technology as a solution to [sustainably produce animal-derived products](#) and to meet the rapidly evolving consumer values. We are wide welcome contracted research clients who wish to develop their own cellular agriculture products in “CulNet Pipeline”. Stage-gating is available for each Step, and progress can be assessed on a step-by-step basis.

Conceptual configuration of the CulNet System



CulNet Pipeline Details

Step 0: Feasibility assessment over 0.5~1 year period at a laboratory scale

Step 1: Proof-of-concept by the CulNet System

Step 2~: Installment of a CulNet System hardware at the client's site for pilot and commercial production

- ※ If the client is already in possession of a cell procurement channel, the project timeline can be shortened.
- ※ Step 0 and Step 1 will be performed at IntegriCulture site.

✓ **At the commercial production step, we plan to provide:**

- Large-scale culture of cells of Client's choice, to be provided as intermediate materials
- Installment a CulNet unit at the Client's site to integrate into the production line
- Pre-processing of the Client's cell to fit to CulNet system
- Production of the Client's product at IntegriCulture Inc. site

✓ **Track record of the CulNet System**

The CulNet Pipeline is ongoing with a number of startups and corporates.

Subscription for CulNet Pipeline

✓ **Goals**

- Pipeline Goals are set through individual consultation

✓ **Benefits**

- Novel cellular agriculture products
- Novel product development by sharing development information
- Repurposing of technology from i.e. regenerative medicine
- Shortened R&D timeline
- Savings of R&D expenditures
- Study of an inexpensive method for the production of animal cells at an unprecedented level

✓ **Budget**

- Step 0, Feasibility study: \$6k~10k/month
- Step 1, Development study: \$15k~/month
- Step 2~, Scaling & operation: \$30k~month

✓ **Duration**

- Step 0, Feasibility study: 0.5-1 year
- Step 1, Development study: 2-3 years
- Step 2~, Scaling & operation: 1-3 years



The time and budget for Step 0 may be larger for **medical applications**, as vigorous assessment of regulatory compliance and technological specifications will be required.

Enquiry for CulNet Pipeline

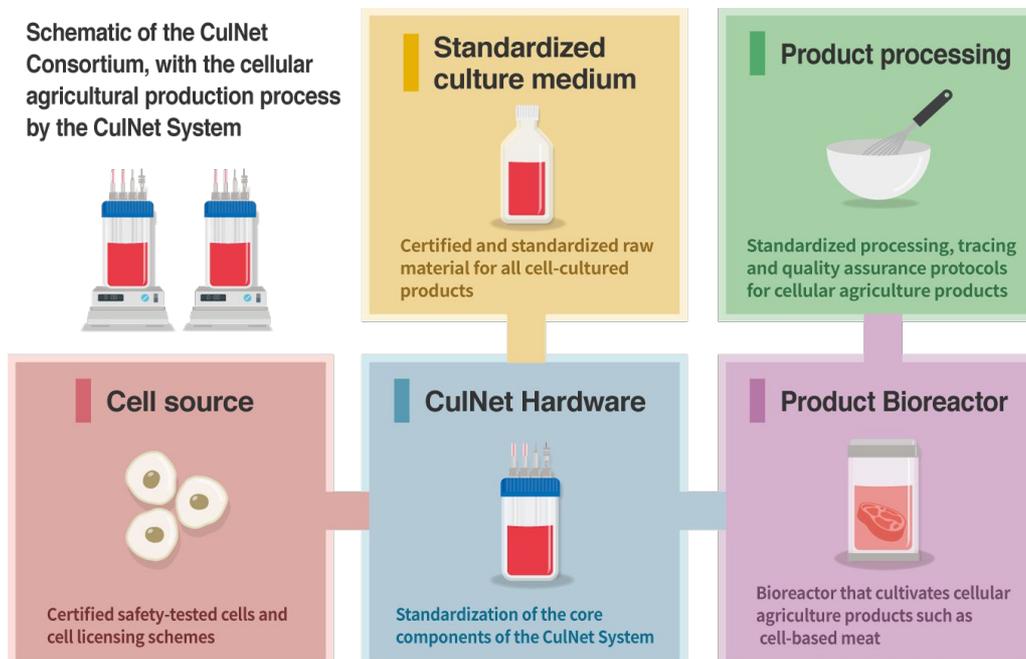
If you are interested in CulNet Pipeline, please contact your contact mail address as follows.

- Please set [CulNet Pipelines] for the subject.
- Please include descriptions of the desired or planned cellular agriculture product

✉ culnet@integriCulture.jp

CulNet Consortium

(CulNet System Joint-Development Scheme)



Overview of the CulNet Consortium

The [CulNet® System](#) is a versatile cell culture platform technology designed for a wide range of cellular agriculture (animal cell-cultured) products such as food and materials. The CulNet System is capable of culturing cells of any types and species without external addition of growth factors or immortalization of the starter cells. To deliver this technology in time, we are establishing the CulNet Consortium (formally in 2021) to join forces and technologies of multiple industry players. The CulNet Consortium systematizes the technological elements of culture medium, bioreactor, bioprocess, quality management, and product processing for which preliminary studies have already commenced with a number of partners. We are The CulNet Consortium is widely welcoming innovative partners that collaboratively build pioneering cellular agriculture infrastructure.

5 Target Areas of the CulNet Consortium (1 to 3)

1. Standardized culture medium

We are developing standardized culture medium based on strategies fundamentally different from existing culture media (basal media) conventionally used for bio-pharma applications. Standardized culture medium is the raw material for all cell-cultured products, and different types are developed for each product categories, i.e food (animal meat and seafood), materials, medical.

- Fields & Targets : Raw materials production and distribution, Recipe development, Fluidics, etc.
- Target features : Environmental footprint, Costs, safety, etc.

2. CulNet Hardware

Hardware components and operation protocols of a CulNet System unit are developed and standardized. The future use of a CulNet technology platform spans all scales, from industrial plants to home use.

- Fields & Targets: Scaling (1 kg/mon.→10 kg→100 kg→1t or more), Pumps, Sensors, Distribution Methods, Supply Methods, etc.
- Target features : Usability, cost, safety, durability (continuous operation >2 years with occasional steam/chemical sterilization), etc.

3. Product Bioreactor

The bioreactor in which the cell-cultured products are cultivated, is developed and standardized. Different bioreactors can be developed for each product categories. The bioreactor handles cells of any one (or more) of target species

- Fields & Targets: Junction with the CulNet System, Designs suited for product categories (i.e. paste meat, tissues, leather, functional ingredients)
- Target features : Usability, cost, safety, durability (continuous operation >2 years with occasional steam/chemical sterilization), etc.

5 Target Areas of the CulNet Consortium (4 to 5)

4. Product processing

The process control elements and quality assurance measures of cell-cultured products and byproducts are developed and standardized. Since processing protocols are product-dependent, development would be reviewed by yearly stage gates.

- Fields & Targets: (2020-2021) Cell-based foie gras, (2021-2023) small-scale whole tissue culture
- Target features : Organoleptic properties, textures, costs, safety, etc.

5. Cell source

Cell procurement (extraction and primary culture) protocols from agricultural and aquacultural resources are developed and standardized. A “cell extraction depot” can be modified to deliver cells of each terrestrial and aquatic animals, for production of food and materials

- Fields & Targets: (2020-2021) Cell licensing scheme for primary producers (i.e. farmers), Cell extraction depot for cell-based foods
- Target features : Cell extraction facility and protocols, Costs, Safety, Sterilization methods, Cell preservation methods, etc.

Joining the CulNet Consortium

✓ Outcomes

- Participation in CulNet System Standardization
- Participation in certification schemes of cell-cultured products
- Repurposing of IP’s developed for regenerative medicine etc.
- R&D resources in cellular agriculture

✓ Expenses

Membership: JPY 4 million per year
 ※ The above fee is subject to future changes.
 ※ The fee does NOT apply to farmers that provide source of cells

✓ Duration

Contract on yearly basis



Please note that this information does not guarantee participation in the desired target field. Toward the official launch in Jan. 2021, conversations with potential partners (with NDA’s) and a selection process in Oct. 2020 are scheduled.

Enquiry for CulNet Consortium

Please contact below for more information about CulNet Consortium:

- Please set [CulNet Consortium] for the subject.
- Please include descriptions of the desired or planned area of participation and a brief description of relevant technology in possession

✉ culnet@integriculture.jp