

# Seeking cutting-edge science and assets to sustainably feed growing global populations

### Company bio:

Charoen Pokphand Foods (CPF) is a global leader in food and agriculture, providing quality livestock, aquaculture and food products to consumers in Asia and the rest of the world. Across our Feed, Farm, and Food businesses, we constantly innovate to improve efficiency and elevate food safety, and animal welfare. We operate in more than 17 countries, while exporting our products to over 40 countries, generating more than \$17 billion in revenue in 2022.



### R&D challenges and priority areas:

#### Alternative protein

##### Plant-based meat analogue:

###### Taste:

- › Ingredients that can improve meaty flavor and/or reduce plant protein off-flavor
- › Alternative fats from plant or microbes that can mimic the functionality, aroma and mouthfeel of animal fats

###### Texture:

- › New processing technologies to improve texture properties of plant-based meat
- › Optimization and enhancements to extrusion technologies (both dry and wet)

###### Clean label ingredients:

- › Replacements for binder agents e.g. methylcellulose
- › Coloring agents

##### Cultivated meat:

###### Cell line development:

- › Technology for accelerating target phenotypes e.g. lower doubling time, high cell density, lower growth factor requirements etc.

###### Media development:

- › Food grade ingredients that can replace/reduce growth factors
- › Media optimization platform/methodology

###### Bioreactor design and Bioprocess development:

- › Bioreactor design for cultivated meat that enables improved yield or lower CAPEX requirements
- › Bioprocess development optimization platform/methodology

## **R&D challenges and priority areas:**

### **Sustainable packaging**

The team's scope encompasses CPF's full product range, covering raw meat, frozen items, ready-to-eat meals, and logistical containers. Due to local waste management infrastructure and consumer habits, food-contact packaging typically ends up in landfills. The areas of interest are, but not be limited to, the following topics:

- › Rigid food packaging design, such as raw meat trays, ready-to-eat meal boxes, and 10 kg shrimp logistical containers.
- › Mono-materials to facilitate the recycling process.
- › Compostable materials for food-contact packaging destined for landfills.
- › Coating materials for paper packaging that encourage recycling processes.

### **Food as Medicine**

We are developing functional foods and nutraceuticals to ensure consumers have access to a holistic range of solutions, for all occasions, that can serve their health and wellness needs. Our areas of interest are, but not limited to, the following topics:

- › Therapeutic food
- › Personalisation of food and nutrition
- › Bioactive compound delivery system to enhance both stability and bioavailability of ingredients
- › Novel bioactive food ingredients
- › Gut microbiome modulation e.g. probiotics and other methods to influence the gut microbiome

## **Specific opportunities and approaches of interest:**

### **Sustainable packaging**

- › The CPF packaging team actively engages in collaborations with external partners, including plastic producers and converters, to propel corporate sustainability objectives forward. These partners are anticipated to have attained a certain level of maturity, so that the solution can be integrated into our partner's processes.

## **Out-of-scope:**

### **Sustainable Packaging**

- › Petroleum-based polymer

## **Stages of development preferred:**

- › Stage agnostic

## **Types of collaboration preferred:**

Our approach is flexible, and we welcome various partnership models, including Joint Research and Development, IP Licensing, Consulting. After initial assessment of the technology, we would typically start with a Proof-of-Concept (POC) project to validate the technology, before evaluating the most suitable mode of collaboration.