

From Petri-Dish to Burger Menu - Platform Process Design for Cultivated Meat and Dairy Products

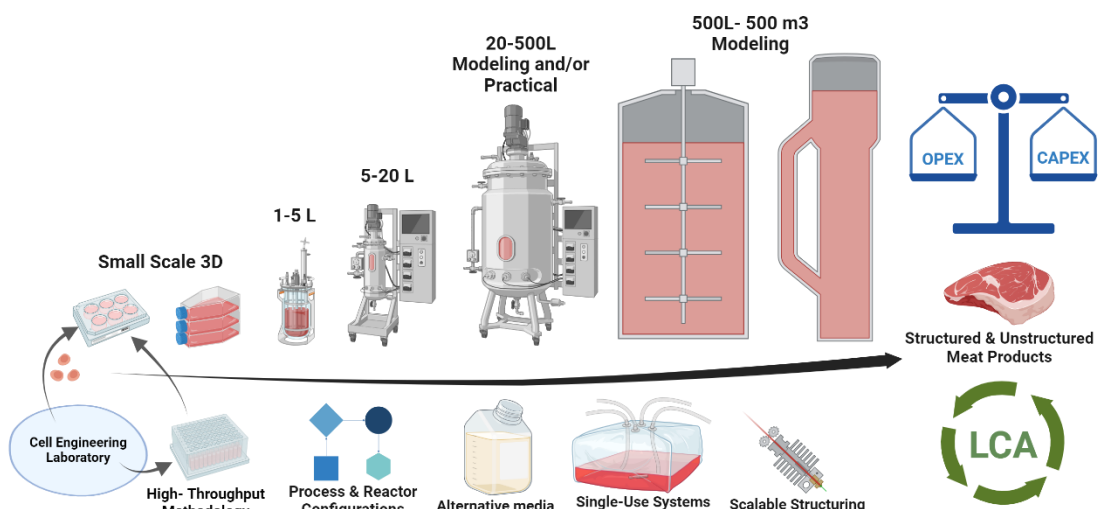
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| PhD Candidate: | Ir. Ben Tumulero Email: ben.tumulero@tudelft.nl |
| Promotor/Supervisor: | Prof. dr. ir. Marcel Ottens |
| Co-Promotor: | Dr. ir. Cees Haringa |
| Institute: | Delft University of Technology, Department of Biotechnology Section Bioprocess Engineering |
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Project Description

As food demand is projected to increase and we need to reduce our climate footprint at the same time, more efficient use of current resources is imperative. Cellular agriculture (CA) offers a solution by producing animal-derived proteins and ingredients without involving animals, thus addressing environmental concerns and improving animal welfare. This PhD project is part of the [Dutch National Growth Fund \(NGF\) CA core research program](#), coordinated by the [Cellular Agriculture Netherlands \(CAN\)](#) foundation and the Dutch Ministry of Agriculture. It focuses on designing cultivated meat (CM) and cultivated dairy (CD) platform processes. Cultivated meat, produced by cultivating mammalian cells in controlled environments, promises a reduced environmental impact compared to traditional meat. Similarly, cultivated dairy, produced via precision fermentation, enables the creation of dairy products from recombinant proteins. By standardizing the methodology of production of these products into a platform process, the development and manufacturing are streamlined and accelerated.

A platform process is created and documented by systematically going through a scale-up process while evaluating and integrating new technologies that enable scaling-up. An experimental scale-down model of the process is supplemented with computational modeling, techno-economic assessments, and life-cycle assessments.



Schematic representation of a scale-up process for cultivated meat while evaluating different process design options. Created with BioRender.com.