

Exciting Master's Thesis Offer starting 15.09.2024

Master Thesis in Sustainability in Cultured Meat Production

Background

As the demand for sustainable food production systems grows, there's a significant need to find new ways to create food that can complement traditional farming methods. Cultured meat technology is a promising path toward more sustainable food systems. To make these technologies work better, we need models to predict and improve the cell cultivation processes. This project is part of the [FEASTS](#) (Fostering European Cellular Agriculture for Sustainable Transition Solutions) program and [PERFEG-MEAT](#) (Perfusion-Enabled Resource Efficiency with Enhanced Growth Factors for Cultivated Meat). FEASTS serves as a support tool for informed policy and decision-making in the EU. PERFEG-MEAT builds a toolbox to provide a scientific and technical basis or platform for future process designs and developments in the field of cultivated meat.

Skills that you will acquire

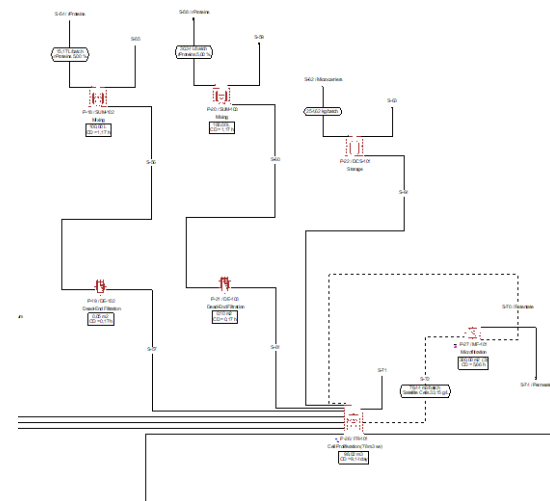
- Working with SuperPro Designer as a tool for in-silico scale up.
- Deeper understanding of bioprocesses in theoretical and practical applications in the framework of cultured meat.
- You will learn about the concept of a biorefinery and management of waste-streams by biorecycling.

Objectives

- Co-develop a detailed model using SuperPro Designer to simulate the processes of cultured meat production (a small part of the process can be seen on the right).
- Identify key parameters that are missing in the literature of large-scale mammalian cell cultivation in your model.
- Perform wet-lab experiments to quantify the missing parameter ranges
- Include your experiment results into the model

Tasks

- Use results from in-house research to validate the process model.
- Analyze the model's predictions to suggest improvements in the process, focusing on cost reduction and minimizing environmental impact.



Qualifications

- Enrolment in a master's program related to biotechnology, bioprocess engineering, chemical engineering, environmental science, or a comparable field.
- Solid academic performance showing a good understanding of engineering principles and scientific research methods.
- Interest in learning SuperPro Designer (experience is a plus but not required).
- Passion for sustainability and food production.

We look forward to receiving your comprehensive application documents (grades, short motivation and your preferred starting date). Please send them via email to katharina.brenner@tum.de or laurenz.koehne@tum.de.

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