

Master thesis project at Chalmers University of Technology, Division of Industrial Biotechnology, Department of Biology and Biological Engineering

Milk protein production in yeast

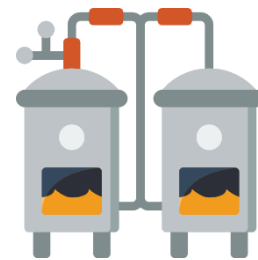
Duration: 6-12 months (30 or 60 hp).

Preferred starting time: January 2021 or September 2021

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Anthropogenic climate change is a major societal challenge of our time. A key aspect of the challenge concerns the future of food production and consumption, and the global agro-food system is estimated to account for about 30% of global greenhouse gas emissions. Sustainable production of protein from biomass is a crucial step towards a climate-neutral society capable of feeding the growing population.

In our group, we develop **new industrial strains for production of various bioproducts** (fuels, biochemicals and proteins), using **CRISPR/Cas9 technologies** for strain engineering. We work with different (industrial) yeast strains, in this project the production host will be the yeast *Pichia pastoris*. We also work on developing bioprocesses, e.g. production processes where the microorganisms grow in bioreactors and produce the bioproducts.

The student will in this project have the chance to work with strain engineering, for developing more efficient protein production hosts for producing milk proteins in yeast cells. The work includes strain characterization in high-throughput as well more in-depth characterization of the most promising novel hosts. The work also involves fluorescent microscopy, protein purification through column chromatography and performing protein activity assays.

The research project is in collaboration with Cirkulär AB, a start-up for sustainable production of milk proteins. Applicants should have a background in **biotechnology/ microbiology / molecular biology / synthetic biology** or related fields.

If you are interested or have any questions, contact us!