Master's Thesis Project

Topic: Directed evolution of an arginine/ putrescine antiporter for energy metabolism in synthetic cells

Group: Poolman Lab, University of Groningen

Start and duration: Flexible

We are looking for a motivated and curious MSc student to join our project on bottom-up synthetic biology, focusing on engineering an arginine/ putrescine antiporter involved in energy generation of a synthetic cell.

What you bring:

- High motivation, initiative, and curiosity
- Preferred but not required: Experience in microbiology, molecular biology, genetics, and biochemistry

What you will learn:

Biochemistry, molecular biology, genetics, and microbiology techniques, including:

- Membrane protein expression, purification, and *in vitro* characterization
- Cloning and strain engineering
- Working with microbes
- Directed evolution techniques

Project description:

This project aims to engineer existing antiporters into a new-to-nature arginine/ putrescine antiporter. The work involves: **1)** cloning, expressing, and characterizing candidate antiporters*,* **2)** rational engineering of candidate proteins, **3)** *in vivo* directed evolution of candidate proteins.

If you are excited about synthetic biology, enzymology, and metabolic engineering, and want to develop strong lab skills in a collaborative and innovative environment, we'd love to hear from you.