

### Background

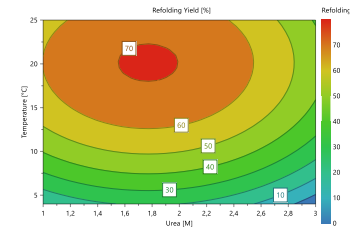
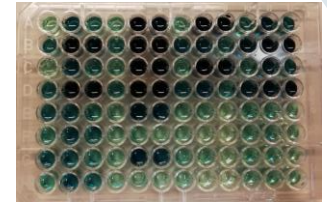
Inclusion Bodies (IBs) are incorrectly folded proteins, which originated from an overwhelming of the folding apparatus in *E. coli*. While it was believed that IBs are only waste products inside the cell, scientific understanding in the recent decade showed that IBs - especially from recombinant production in *E. coli* - can be used for different purposes. On the one hand IBs can be used directly for different applications, and on the other hand IB can be refolded, so that the biological correct structure and activity can be reestablished during this process step. Combining high product titers and the easy cultivation techniques in *E. coli*, refolding would enable industry to increase their product output tremendously. However, refolding is up to date a highly empiric step in the production chain.

### Goal of the Thesis

A fundamental understanding of the refolding step and introduction of new techniques like fed-batch and continuous refolding are not only interesting from an academic point of view but are also very interesting for industrial applications. During this thesis, you will develop methods for acceleration of IB refolding using the applied BioLector device. After production of two model IB products in the upstream using state of the art cultivation techniques, you will plan multivariate experiments to find optimal process conditions for the refolding process.

### General remarks

- You have a bachelor degree in engineering, biotechnology, biochemistry or a related field and already successfully completed all necessary lab courses in your master program.
- You want to work in coordination with industry (m2p-Labs), are fluent in English (written and spoken) and like to present your results in industrial meetings. Furthermore you will have the possibility to be co-author in scientific publications based on your results.
- You will get a compensation of 300 € / month for you work (**basis of 40 h / week**). The start of the thesis is scheduled with **September 2020**.



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