

# PhD Position on Digital Twin development for protein refolding bioprocesses

## • Motivation and Goals of this Position

The bacterium *E. coli* is a very prominent host for producing recombinant proteins for biopharmaceuticals. Often, the product is accumulated as Inclusions Bodies (IBs) inside of the cell. In order to recover the product, the IB is processed in a process chain: solubilized, refolded and concentrated. So far, this process is prone to very high losses in product yield. In the last two years we earned lots of experience in analyzing the effect of process parameters on the refolding step yield.

The next consequent step and goal of this PhD position is a predictive control of this process and extend this knowledge to the above mentioned process chain. We strongly believe, that the deployment of Digital Twins, such as a hybrid model which is deployed in a real-time context, is the key enabler for this task. This PhD position focusses on the development of a digital twin at laboratory scale.

## • Opportunities

This work will be done in joint cooperation with TU WIEN, Research Area of Biochemical Engineering, headed by Prof. Christoph Herwig. We offer a highly interesting, diversified position comprising bioprocess technology and modelling tools projected on recombinant protein bioprocesses in tight cooperation applied basic science projects with industrial partners.

## • Requirements

Master of Science in Bioprocess Technology, Biotechnology, Electrical Engineering, Chemical Engineering or similar.

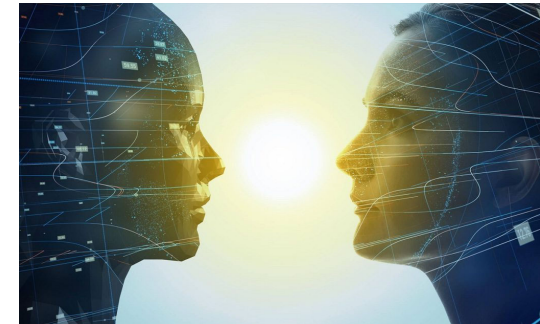
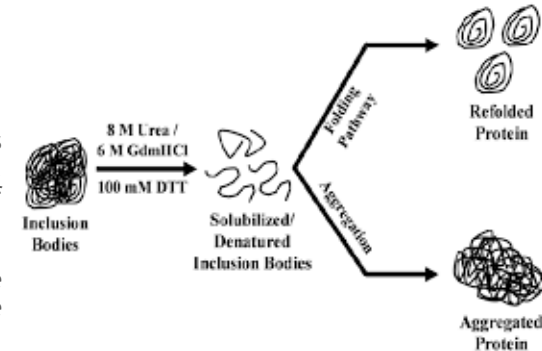
You should bring:

- Experience in analytical methods and background in down stream bioprocess technology
- Curiosity and patience to transfer established methods to the emerging field of biopharmaceutical processes
- Sensitivity for data analysis and statistical assessment of large data sets including strong background in modelling (Python, MATLAB)
- A superior command of English
- You should be accustomed to networked critical analytical thinking, scientifically interested and able to work in a team respecting tight project timelines.

The monthly minimum wage is currently € 2'148,- (14x per year), before tax, at a 30h/week employment.

The competence centre aims to increase the proportion of women and encourages qualified women to apply.

This PhD position starts on **October 1<sup>st</sup> 2019** and is scheduled for 3 years.



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