

Transcriptional profiling of a pigment-producing microbial process

About us: The BIOSCALE group is situated within the Chemical Engineering (CIW) Faculty of the KIT. Our goal is to tackle challenges in bioprocess development with a novel and interdisciplinary approach involving bioprocess engineering, molecular biotechnology and data science. Our team envisions a biological-driven bioprocess development while applying cutting edge next generation sequencing technology and pioneering a harmonization of the molecular and technical nature of biotechnological processes. Utilizing the acquired knowledge, our aim is to improve bioprocess development and facilitate novel bioprocess innovations e.g. for the production of colorants and fragrances. Our group is collaborating with internal and external experts from academia and industry in e.g. bioinformatics, engineering and synthetic biology.

Project-Background: Microbial bioprocess innovations are a rising resource for the production of natural colorants such as carotenoids. However, bioprocess development and scale-up is often laborious and undergoes iterative developmental cycles. Novel concepts include the harnessing of detailed and biological insights such as omics data e.g. from next generation RNA-Seq to improve and speed up bioprocess development on data-driven predictions for an optimal process design.

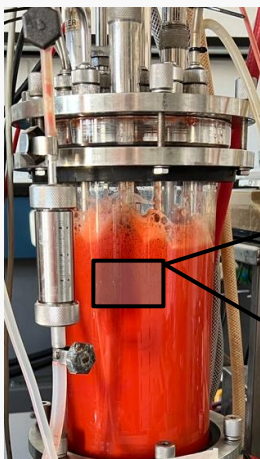
Project aim: The goal of the project is to determine the transcriptome (RNA-Seq) of a pigment-producing microbial bioprocess in chemo-stat cultivations.

Your tasks:

- Microbiological standard methods
- Cultivation of colorful *Corynebacterium glutamicum* in bench top stirred overpressured bioreactors
- Extraction and quantitative analysis of pigments with HPLC
- Scientific discussion with the project team on a weekly basis
- Reporting of experiments and results

Your qualification:

- Background in biotechnology, bioengineering, bioinformatics or similar
- Knowledge and interest in microbiology
- Interest in disruptive approaches and international working atmosphere
- Good communication and team member skills
- High motivation to explore the details and principles of microbial genetics in bioprocesses



Transcriptional Profiling



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