



Der Vorsitzende des Promotionsausschusses

EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Herr M. Sc. Jens Christmann
Systembiotechnologie
(Prof. Dr. Christoph Wittmann)

am

Freitag, 24. Januar 2025, 15:00 Uhr s.t.

per Videokonferenz; Link für MS Teams: <https://tinyurl.com/237fleb5>
Raum für die Prüfung: Gebäude C4.3, Kleiner Hörsaal I (Raum 0.02), EG.

Thema der Dissertation:

Advanced production of the antimicrobial peptide pediocin PA-1 in metabolically engineered *Corynebacterium glutamicum*

Bacteriocins are peptides produced by bacteria to inhibit or eliminate competing organisms. Many target human pathogens, making them promising antibiotic alternatives, including pediocin PA-1, which is effective against *L. monocytogenes*. This work focused on optimizing pediocin PA-1 production in *C. glutamicum*, starting with a stepwise optimization of the cultivation process. Optimized bioreactor runs achieved pediocin PA-1 titers of 66 mg L^{-1} , nearly a seven-fold increase. The second part focused on enhancing production with high-copy plasmids, assessed via mCherry expression. Transcriptome analysis of strains expressing mCherry revealed significant changes in the stress-response system. *C. glutamicum* strains with high-copy plasmids showed a 2.5-fold increase in pediocin PA-1 production, reaching $52 \mu\text{g mL}^{-1}$.

Saarbrücken, 10. Januar 2025

Prof. Dr. Uli Kazmaier