



Der Vorsitzende des Promotionsausschusses

EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Herrn M.Sc. Ruslan Zhukovets
Pharmazeutische Biotechnologie
(Prof. Dr. Andriy Luzhetskyy)

am

Freitag, 17. April 2026, 14:00 Uhr s.t.

per Videokonferenz: Link für MS Teams:

<https://teams.microsoft.com/meet/32083465749195?p=eZsBqp20r2sYfPKjRv>

Raum für die Prüfung: kleiner Hörsaal II (Raum 0.03), Gebäude C4.3

Thema der Dissertation:

Biotechnological Access to Rare Non-proteinogenic Amino Acids via Metabolic Engineering

This dissertation establishes a microbial platform for the sustainable production of non-proteinogenic amino acids as valuable building blocks for pharmaceuticals and novel biomolecules. The work focuses on cyclic guanidinium-containing amino acids, including enduracididine, capreomycin, and their hydroxy derivatives, which are key components of clinically relevant antibiotics. Using metabolically engineered bacterial hosts, biosynthetic gene clusters were functionally expressed and optimized to achieve efficient production. Strategies such as increased gene copy number and improved precursor supply significantly enhanced product yields. The results demonstrate the feasibility of fermentative production as a scalable and environmentally friendly alternative to chemical synthesis. This platform provides a basis for the development of next-generation bioactive compounds and protein-based therapeutics.

Saarbrücken, 1. April 2026



Prof. Dr.-Ing. Georg Frey