PhD Seminar Abstract

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The majority of antibiotic, antiviral, and anticancer drugs used in modern medicine are natural products and their derivatives. Ribosomally synthesized and post translationally modified peptides (RiPPs) form a major class of bioactive natural products, comprising over 20 structurally distinct families. To unlock the full potential of RiPPs and opportunities for pathway engineering, we must develop a deeper understanding of their biosynthetic principles.[1,2] The cyanobactins are a class of RiPP first discovered in cyanobacteria. They are small cyclic peptides that are highly modified through side chain cyclization, epimerization, prenylation, and more.[3] In recent years, similar compounds have been discovered in *Streptomyces*. This project aims to characterize the biosynthetic pathway of curacozole, a cyanobactin-like compound produced by the soil bacterium *Streptomyces curacoi.* A putative gene cluster has been proposed, but the functions of the many encoded enzymes are unknown as they share little similarity to the known biosynthetic gene clusters of cyanobactins, such as the patellamides and trunkamide.[4,5] *In vitro* assays with purified enzymes and the precursor peptide CzlA were performed and analyzed by LC-MS/MS. Recent work on enzymes involved in heterocyclization, hydroxylation, and macrocyclization will be presented.

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