

## Martin Schmeing, Ph.D.

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*Hosted by: Natalie Zeytuni, Ph.D.*



**Wednesday, Dec. 7, 2022**

**11:30 am -12:30 pm**

**Room 1/12 - Strathcona Anatomy and Dentistry Building**

### **“Structures and functions of (non-)nonribosomal peptide synthetases ”**

The ribosome isn't the only important peptide maker in nature. In microbes, additional macromolecular machines make peptides with a wide variety of natural functions and applications, including antibiotic, anti-tumour, anti-viral, immunosuppressant, metal scavenging and nutrient storage. I will touch on our work on the well-known, modular nonribosomal peptide synthetase (NRPS) family of megaenzymes, and share our latest results on structural and functional study of the non-NRPS enzyme cyanophycin synthetase.

Cyanophycin is a natural biopolymer consisting of a chain of poly-L-Asp residues with L-Arg residues attached to the carboxylate side chains by isopeptide bonds, used in a wide range of bacteria for cellular nitrogen storage. Our studies reveal how activities from three domains combine to allow elegant processive polymerization of long chains of cyanophycin, and that it can opportunistically be used to support growth of important human pathogens.