



# Seminar Announcement

## Peptide asparaginyl ligases as versatile biotechnological tools for the development of protein-based theranostics

**Date:** 19 February 2021, Friday

**Time:** 4pm

**Venue:** Classroom 1, SBS

Peptide asparaginyl ligases (PALs) catalyze transpeptidation reactions at Asx-Xaa peptide bonds. Structurally, PALs belong to a family of proteases known as asparaginyl endopeptidases (AEPs) or legumains that are found in many organisms. In plants, many AEPs exert dual endopeptidase (hydrolase) and transpeptidase (ligase) functions and are responsible for post-translational processing and biosynthesis of certain seed proteins and Cys-rich cyclotides. Butelase-1 is the first member of this family of enzymes that is characterized as a pure PAL. As the most efficient peptide ligase known to date, butelase-1 has found many useful applications, such as peptide/protein macrocyclization and labeling and cell-surface modification. Recently, VyPAL2, a new PAL discovered from the cyclic peptide-producing plant *Viola yedoensis*, was shown to be also a highly efficient ligase. Because very short peptide motifs are required for substrate recognition, PAL-mediated ligation reactions leave minimal traces in the products. In this talk, we will first give a brief review on the PAL enzymes and then present their use as a versatile biotechnological tool in biomedical research and for the development of protein-based theranostics.



**Speaker:**

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