

세미나 초록

성명	박춘구
소속	전남대학교 생명과학기술학부
발표 주제	Accelerating enzyme engineering through multi-modal AI
발표 내용	<p>We present a multi-modal AI framework for enzyme engineering that advances biocatalysis discovery from environmental metagenomes. Our approach identifies functionally relevant enzymes, enabling discovery of novel biocatalysts for specific transformations. The framework integrates a self-constructed Enzymatic Protein Sequence Library (EPL) with six AI models predicting enzyme reactions, K_{cat}, K_m, and other biochemical properties. Our system screens metagenomic datasets to identify candidate enzymes regardless of sequence homology. Predicted candidates undergo experimental validation to confirm properties and guide protein engineering optimization. This platform provides an improved approach compared to traditional methods, enabling the development of customized biocatalysts for biocatalysis and enzyme engineering.</p>