

## **TAILORED BIOSYNTHESIS OF PSEUDOSUGARS AGAINST DIABETES BY REPURPOSING THE PROMISCUOUS MICROBIAL ENZYMES**

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Synthetic biology plays an important role in not only revealing the complicated functions of organisms but also providing a promising route for bio-manufactures for medicine. However, we still faced the challenges for building a cost-efficient process due to shortages of suitable enzymes for the desired reactions. Molecular evolution of the promiscuous enzymes based on the knowledge of enzyme catalytic mechanisms provide a promising route for turning from proof-of-concept towards precision function. Here, we give some examples for discovering and evolving the promiscuous enzymes in artificial synthetic pathways, especially for biosynthesis of voglibose against diabetes. The precise control of catalysts enhances the ability to control the biological system, therefore provides a new path for targeting the precision function in synthetic biology.