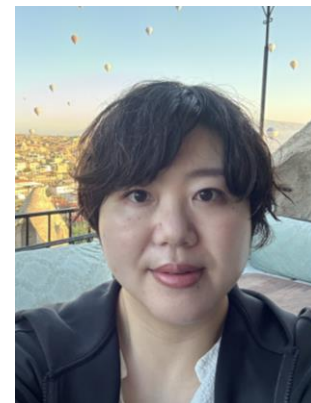


R&D Project Title: Engineering microbial consortia via small molecule mediators

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Summary:

In this study, we aim to streamline the entire pipeline from the discovery to the large-scale supply of novel valuable metabolites (pesticide seed compounds).

To achieve this goal, we will mine the reservoir of untapped metabolites to discover the valuable metabolites with potential as pesticide seeds. We will also elucidate the diversity of interbacterial interaction mechanisms mediated by these compounds. In parallel, we will develop a predictor capable of estimating the production levels of such valuable metabolites in co-culture systems. Based on these insights, we will rationally design microbial communities that can enhance the production of the compounds.

The pipeline established through this study will provide a highly efficient system for compound production, with a reduced environmental footprint. In addition, the pesticide identified through this approach are expected to increase the yield of major crops, while simultaneously reducing the consumption of nitrogen fertilizers and fuels, thereby contributing to the reduction of CO₂ emissions.

