

Exploiting Hydrogen-oxidizing Bacteria as a Novel Biomanufacturing Platform for Production of Chemicals from CO₂

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COLIPI, an early-stage startup, harnesses the potential of CO₂ as a direct carbon source for biomanufacturing by employing hydrogen-oxidizing bacteria (HOB) to produce valuable chemicals. These microbes are highly versatile and efficient CO₂ utilizers, requiring H₂ and O₂ for growth and metabolism. However, scaling HOB-based processes presents significant challenges, as conventional bioreactors are not designed to safely or effectively handle these gas mixtures at large scales. To address these challenges, COLIPI integrates advanced strain engineering with innovative bioreactor and process design, optimizing the system for safe, scalable, and economically viable chemical production from CO₂. This presentation will showcase COLIPI's comprehensive development strategy, highlight current progress, and outline the roadmap for industrial-scale implementation.