

AN EFFICIENT COMMERCIAL PLATFORM FOR MICROBIAL ENGINEERING OF NATURAL PRODUCTS

Hsien-Chung Tseng, Manus Bio, 1030 Massachusetts Ave, Suite 300, Cambridge, MA, USA
hctseng@manusbio.com

Plants produce a variety of rare natural products which are used in our daily lives as flavors, fragrances, food ingredients, cosmetics, vitamins, pharmaceuticals and agricultural chemicals. Despite their intrinsic value, however, sourcing remains a bottleneck to more widespread use due to their low abundance in nature. Manus Bio has established an innovative platform technology for engineering microbial factories grounded in modular and data-driven design and developed a commercial organism which can produce a myriad of typically ultra-rare and costly ingredients used in our daily lives. These microbes are capable of converting carbon feedstock to the product at high yields and have been adapted to produce a mature pipeline of products, or "BioAssemblyLine." To engineer our "BioAssemblyLine," we integrate three core technologies - our proprietary Multivariate Modular Metabolic Engineering (MMME), Pathway Integrated Protein Engineering (PIPE) and Integrated Multivariate Omics Analysis (IMOA) platforms. In this presentation, we will highlight several important insights and guiding principles established to engineer our "BioAssemblyLine" microbial factories.