

Supplementary data

The Metabolic Engineering and Synthetic Organic Cycles. A) Identification of bioactive molecules through isolation, screening, and subsequent structure elucidation. B) Isolation and culture of producing host strain. C) Genetic sequencing of metabolite biosynthetic pathway. D) Elucidation of enzyme activity and timing through enzymology and knockout experiments. E) Engineering enzyme pathways into a heterologous host organism. F) Fermentative optimization to produce active molecule. G) Combinatorial biosynthesis. H) Retrosynthetic analysis. I) Total synthesis. J) Process development and large-scale synthesis. K) Pharmaceutical production or high-throughput modification of target molecule.

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