Expanding the product portfolio of fungal type I fatty acid synthases

Fungal type I fatty acid synthases (FASs) are mega-enzymes with two separated, identical compartments, in which the acyl carrier protein (ACP) domains shuttle substrates to catalytically active sites embedded in the chamber wall. We devised synthetic FASs by integrating heterologous enzymes into the reaction chambers and demonstrated their capability to convert acyl-ACP or acyl-CoA from canonical fatty acid biosynthesis to short/medium-chain fatty acids and methyl ketones.

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