

Turning microbial cells into chemical factories.

Abstract:

Utilization of the biosynthetic machineries of microbial cells allows the production of complex chemical compounds that are otherwise inaccessible by chemical synthesis or isolation from natural sources. By mining genome sequences for biosynthetic genes and combining identified genes from different organisms into functional biosynthetic pathways novel natural and unnatural compounds can be produced in recombinant cells. *In vitro* evolution is used to alter catalytic functions of biosynthetic enzymes. Recent results on the recombinant production of novel carotenoid and porphyrin compounds will be presented. These compounds are of interest as e.g. therapeutics, agrochemicals, nutraceuticals, chemical catalysts and novel conductive materials.

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