Docket #: S20-336

Biocatalytic production of para-hydroxybenzoic acid (p-HBA) from methanol and methane

Stanford researchers have constructed a microbial cell factory by genetically modifying the bacterium *Methylomicrobium alcaliphilum* 20Z to convert methanol and methane into *para*-hydroxybenzoic acid (*p*-HBA). *p*-HBA is a highly sought-after precursor and feedstock for various industrially relevant chemicals, including high-performance aromatic bioplastics like liquid-crystal polymers. Since methane is currently a cheap and abundant feedstock, biotechnological production from methane (natural gas / biogas) or from methanol (wood alcohol) can be more environmentally and economically viable as opposed to production from conventional sugar-based carbon-sources.

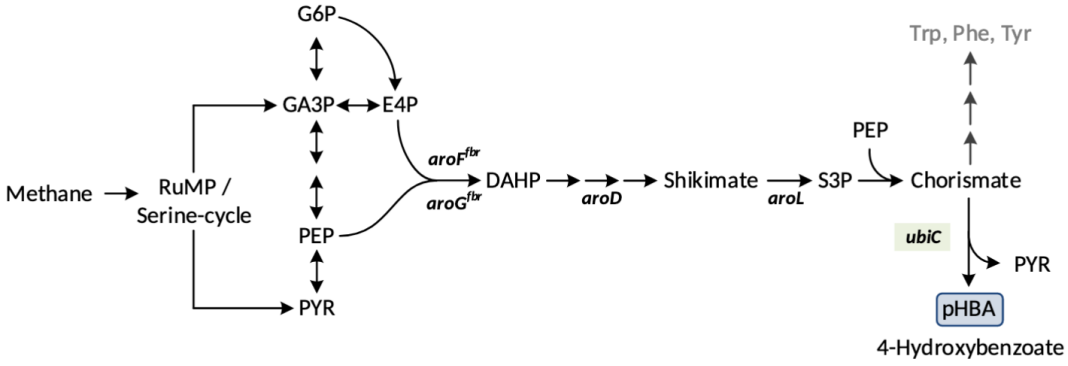


Image Credit-inventor

Stage of Development

- Proof-of-concept
- Optimization in progress

Applications

- Production of *para*-hydroxybenzoic acid (*p*-HBA)
- End user industries include pharmaceuticals, cosmetics, polymers, and textiles

Advantages

- Novel, low-cost approach to production
- Uses more abundant and less expensive feedstock methanol and methane
- Current sugar-based biotech process suffers from higher carbon footprint and indirectly uses arable land

Patents

- Published Application: WO2022072514
- Published Application: 20230357708

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