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$P450_{BM3}$ fused to phosphite dehydrogenase allows phosphite-driven selective oxidations

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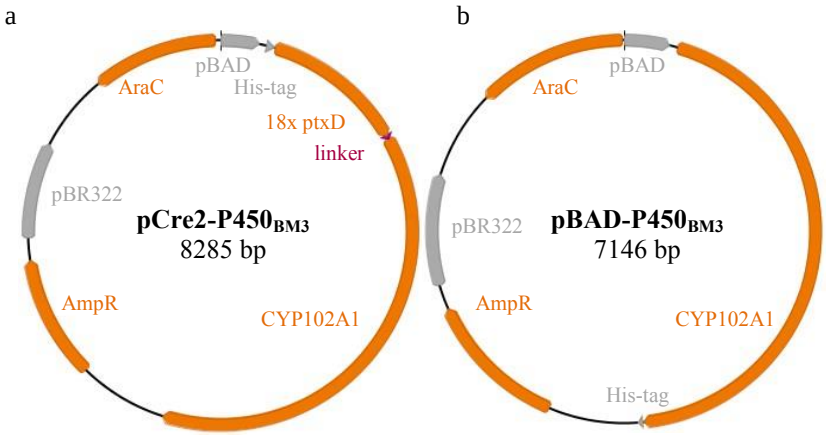

Fig S1 Plasmid maps of the a) synthetic construct pCre2-P450$_{BM3}$ for the production of the fully self-sufficient PTDH-P450$_{BM3}$, in comparison to b) pBAD-P450$_{BM3}$ as expression vector for P450$_{BM3}$ WT in *E. coli*.

Table S1 Qualitative analysis of the level of PTDH-P450$_{BM3}$ in the cell free extract after expression from a pBAD vector in different *E. coli* strains under the same conditions, determined by CO-difference spectra.

***E. coli* strain**	**Expression level** [mg/50 mL culture]
Top10	4.7
BL21 DE3	0.0
C43	0.8
SHuffle	0.7

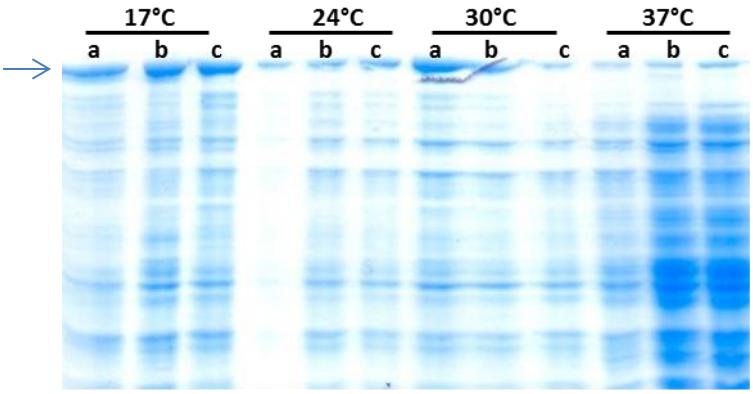

Fig S2 Expression optimization of PTDH-P450$_{BM3}$ by varying expression temperature and varying arabinose concentration. Soluble fraction obtained after expression in *E. coli* TOP10 at different temperatures and arabinose concentrations a = 0.002%, b = 0.02% and c = 0.2%.. Proteins were separated in a 12% SDS-Page gel. The protein band of PTDH-P450$_{BM3}$ is highlighted with an arrow.

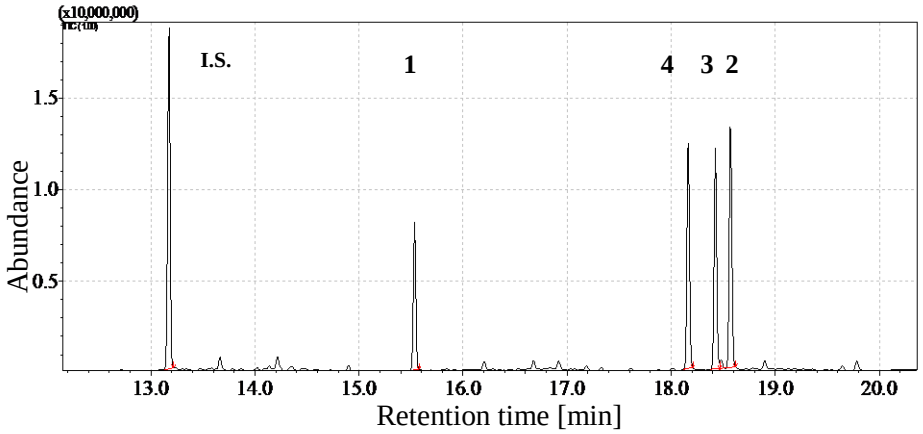

Fig S3 Representative chromatogram of TMS-derivatized lauric acid and the hydroxylated products from conversions with $P450_{BM3}$. For quantitative comparison all peak areas were normalized relative to the peak area of capric acid, the internal standard (I.S.). The response factor of the monohydroxylated TMS-derivatized products was estimated from TMS-derivatized 12-hydroxylauric acid.

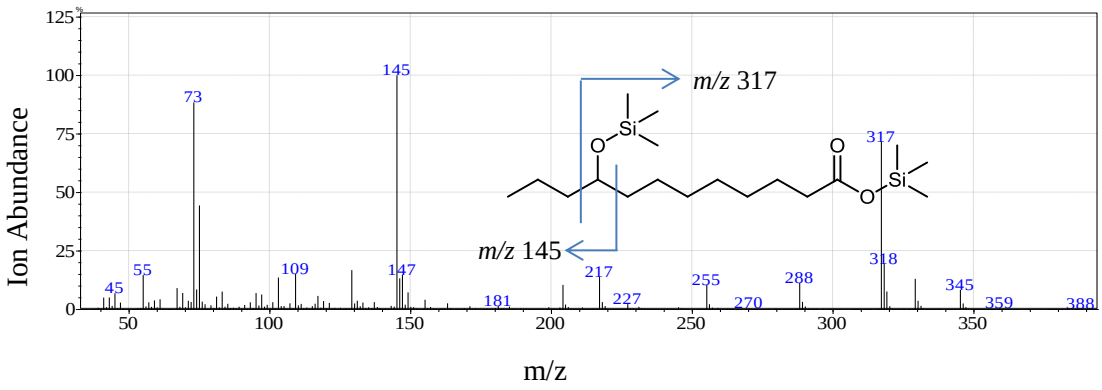

Fig S4 Representative fragmentation spectra for TMS derivatized 9-hydroxylauric acid. MS fragments correspond to the GC-MS peak at 18.1 min (TMS derivatized **4**).