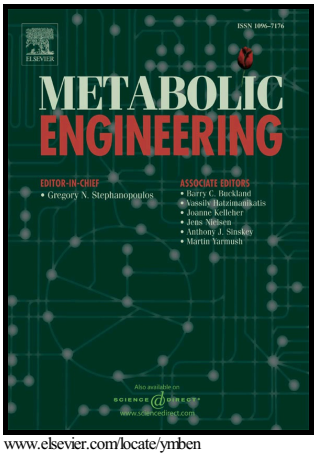

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Heterologous biosynthesis and manipulation of alkanes in *Escherichia coli*

Ying-Xiu Cao[a,b1], Wen-Hai Xiao[a,b1], Jin-Lai Zhang[a,b], Ze-Xiong Xie[a,b], Ming-Zhu Ding[a,b], Ying-Jin Yuan[a,b*]

[a]Key Laboratory of Systems Bioengineering (Ministry of Education), Tianjin University, Tianjin, 300072, PR China.

[b]SynBio Research Platform, Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), School of Chemical Engineering and Technology, Tianjin University, Tianjin, 300072, PR China.

caoyingxiu@163.com

yjyuan@tju.edu.cn

yjyuan@public.tpt.tj.cn

[*]Corresponding author. Tel.: +86 139 2041 8397; fax: 86 22 27403888.

Abstract

Biosynthesis of alkanes in microbial foundries offers a sustainable and green supplement to traditional fossil fuels. The dynamic equilibrium of fatty aldehydes, key intermediates, played a critical role in microbial alkanes production, due to the poor catalytic capability of aldehyde deformylating oxygenase (ADO). In our study, exploration of competitive pathway together with multi-modular optimization was utilized to improve fatty aldehydes balance and consequently enhance alkanes formation in *Escherichia coli*. Endogenous fatty alcohol formation was supposed to

[1] These authors contributed equally to this work.