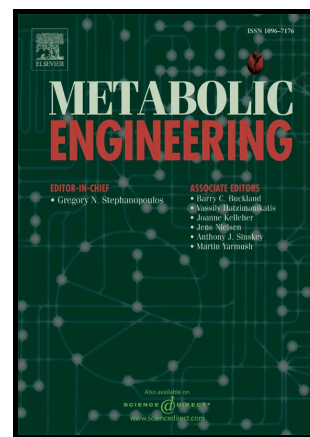


Author's Accepted Manuscript

Exceeding the theoretical fermentation yield in mixotrophic Rubisco-based engineered *Escherichia coli*

I-Ting Tseng, Yi-Ling Chen, Ching-Hsun Chen, Zhi-Xuan Shen, Cheng-Han Yang, Si-Yu Li



www.elsevier.com/locate/ymben

PII: S1096-7176(18)30053-3
DOI: <https://doi.org/10.1016/j.ymben.2018.04.018>
Reference: YMBEN1393

To appear in: *Metabolic Engineering*

Received date: 1 February 2018
Revised date: 4 April 2018
Accepted date: 23 April 2018

Cite this article as: I-Ting Tseng, Yi-Ling Chen, Ching-Hsun Chen, Zhi-Xuan Shen, Cheng-Han Yang and Si-Yu Li, Exceeding the theoretical fermentation yield in mixotrophic Rubisco-based engineered *Escherichia coli*, *Metabolic Engineering*, <https://doi.org/10.1016/j.ymben.2018.04.018>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Exceeding the theoretical fermentation yield in mixotrophic Rubisco-based engineered
Escherichia coli

I-Ting Tseng, Yi-Ling Chen, Ching-Hsun Chen, Zhi-Xuan Shen, Cheng-Han Yang, and
Si-Yu Li*

Department of Chemical Engineering, National Chung Hsing University, Taichung 402,
Taiwan

*Corresponding author. *Tel:* +886(4)2284 0510 x509; *E-mail:* syli@dragon.nchu.edu.tw

Abstract

Rubisco-based engineered *Escherichia coli* MZLFB (*E. coli* BL21(DE3) Δzwf , Δldh , Δfrd) containing heterologous phosphoribulokinase (Prk) and Ribulose-1,5- biphosphate carboxylase/oxygenase (Rubisco) was constructed for the mixotrophic growth. However, *in situ* CO₂ recycling was hindered by clogs of pyruvate during glucose metabolism, which consequently resulted in an insufficient regeneration of NAD⁺ through the *pflB*-mediated ethanol production. Recombinant plasmid pLOI295 (encodes pyruvate

Download English Version:

<https://daneshyari.com/en/article/6494102>

Download Persian Version:

<https://daneshyari.com/article/6494102>

[Daneshyari.com](https://daneshyari.com)