

## Accepted Manuscript

Metabolic engineering of yeast for fermentative production of flavonoids

Angelica Rodriguez, Tomas Strucko, Steen Gustav Stahlhut, Mette Kristensen,  
Daniel Killerup Svendsen, Jochen Forster, Jens Nielsen, Irina Borodina

PII: S0960-8524(17)30930-6  
DOI: <http://dx.doi.org/10.1016/j.biortech.2017.06.043>  
Reference: BITE 18280

To appear in: *Bioresource Technology*

Received Date: 12 March 2017  
Revised Date: 7 June 2017  
Accepted Date: 8 June 2017

Please cite this article as: Rodriguez, A., Strucko, T., Stahlhut, S.G., Kristensen, M., Svendsen, D.K., Forster, J., Nielsen, J., Borodina, I., Metabolic engineering of yeast for fermentative production of flavonoids, *Bioresource Technology* (2017), doi: <http://dx.doi.org/10.1016/j.biortech.2017.06.043>

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 proof before it is published in its final 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.



## Metabolic engineering of yeast for fermentative production of flavonoids

Angelica Rodriguez<sup>1a</sup>, Tomas Strucko<sup>1a</sup>, Steen Gustav Stahlhut<sup>1</sup>, Mette Kristensen<sup>1</sup>, Daniel Killerup Svenssen<sup>1</sup>, Jochen Forster<sup>1</sup>, Jens Nielsen<sup>1,2</sup>, Irina Borodina<sup>1\*</sup>

<sup>1</sup>The Novo Nordisk Foundation Center for Biosustainability, Technical University of Denmark, Kemitorvet 220, 2800 Kgs. Lyngby, Denmark

<sup>2</sup>Department of Biology and Biological Engineering, Chalmers University of Technology, Kemivägen 10, SE412 96 Gothenburg, Sweden

<sup>a</sup>These authors contributed equally to this work.

\*Corresponding author e-mail address: [irbo@biosustain.dtu.dk](mailto:irbo@biosustain.dtu.dk)

### Abstract

Yeast *Saccharomyces cerevisiae* was engineered for *de novo* production of six different flavonoids (naringenin, liquiritigenin, kaempferol, resokaempferol, quercetin, and fisetin) directly from glucose, without supplementation of expensive intermediates. This required reconstruction of long biosynthetic pathways, comprising up to eight heterologous genes from plants. The obtained titers of kaempferol  $26.57 \pm 2.66$  mg L<sup>-1</sup> and quercetin  $20.38 \pm 2.57$  mg L<sup>-1</sup> exceed the previously reported titers in yeast. This is also the first report of *de novo* biosynthesis of resokaempferol and fisetin in yeast.

The work demonstrates the potential of flavonoid-producing yeast cell factories.

\* Corresponding author.

E-mail address: [irbo@biosustain.dtu.dk](mailto:irbo@biosustain.dtu.dk) (Irina Borodina).

Download English Version:

<https://daneshyari.com/en/article/7069489>

Download Persian Version:

<https://daneshyari.com/article/7069489>

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