LIVING MODIFIED ORGANISM (LMO)

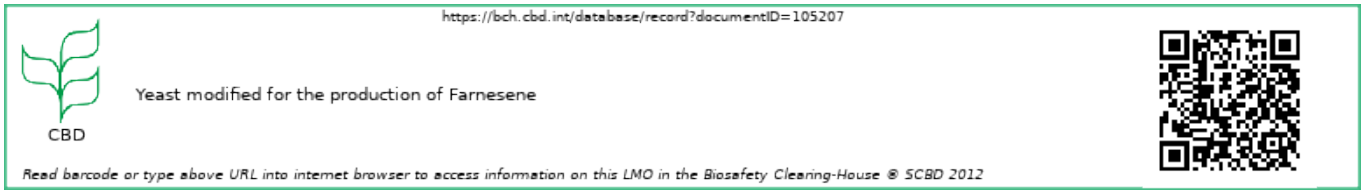
BCH-LMO-SCBD-105207-2

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 27 JAN 2014

Living Modified Organism identity

The image below identifies the LMO through its unique identifier, trade name and a link to this page of the BCH. Click on it to download a larger image on your computer. For help on how to use it go to the LMO quick-links page.



Name

Yeast modified for the production of Farnesene | EN

Transformation event

Y1979-Farnasene

Developer(s)

- PERSON: DR ODAIR GLAVINA | BCH-CON-SCBD-105201-2

PERSON

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RELATED ORGANIZATION

Description

The Y1979 strain of yeast was transformed with the insertion of the coding sequence for Farnesene Synthase to produce beta-farnesene from the fermentation of sugar cane. This is a long chain hydrocarbon that can be used as a biofuel. | EN

Recipient Organism or Parental Organisms

The term “Recipient organism” refers to an organism (either already modified or non-modified) that was subjected to genetic modification, whereas “Parental organisms” refers to those that were involved in cross breeding or cell fusion.

BCH-ORGA-SCBD-45724-5 ORGANISM | SACCHAROMYCES CEREVISIAE (YEAST, YEASX) | Fungi

Point of collection or acquisition of the recipient organism or parental organisms

Strain Y1979 derived from PE-2 EN

Characteristics of the modification process

Introduced or modified genetic element(s)
Some of these genetic elements may be present as fragments or truncated forms. Please see notes below, where applicable.

BCH-GENE-SCBD-105200-3 FARNESENE SYNTHASE GENE | (ARTEMISIA , SWEET WORMWOOD, SWEET ANNIE, SWEET SAGEWORT, ANNUAL WORMWOOD) | Protein coding sequence | Use in industrial applications (Biofuel production)

Notes regarding the genetic elements present in this LMO

Modified S. cerevisiae developed through a framework of the modular construction of integration cassettes that are propagated in Escherichia coli. EN

LMO characteristics

Modified traits

Use in industrial applications
Biofuel production

Common use(s) of the LMO

Biofuel

Additional Information

Additional Information

Saccharomyces cerevisiae strain Y1979 is in a diploid state, resulting in the blocking of sexual reporoduction between the haploid forms α and a. Additionally, genes STE5 and IME1, which are required for sporulation and for early sporulation-specific genes expression, were inactivated in this strain therefore hindering production of haploid ascospores and reducing to insignificant levels the likelihood that the yeast sexually reproduces with other naturally occurring yeasts, including laboratory lineages.

These modifications, coupled with alterations to the mevalonate pathway, make this strain highly dependent on specific conditions for proliferation and maintenance, warranting difficulty for the organism in colonizing the environment by invasion or competition with the natural microbiota.

Other relevant website addresses and/or attached documents

? Yeast modified for the production of Farnesene Synthase - CTNBio *(English)*

Amyris *(English)*

? Microbial engineering for the production of advance biofuels.pdf *(English)*

? Systems biology of yeast: enabling technology for development of cell factories for production of advanced biofuels *(English)*

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Further Information

Questions about the Cartagena Protocol on Biosafety or the operation of the Biosafety Clearing-House may be directed to the Secretariat of the Convention on Biological Diversity.

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