Microbiology – Human food

New inducible promoter in Yarrowia lipolytica as a tool to produce molecules

Description

Jean-Marc Nicaud's team at Micalis lab, in collaboration with University of Liège and University of Brussels, developed Yarrowia lipolytica with an inducible promoter. The promoter was built from the EYK1 gene which codes for an erythrulose kinase and the EYD1 gene which codes for the erythrulose dehydrogenase. These promoters can be induced by erythritol and erythrulose. Upstream activating sequences were identified. New hybrid promoters with tandem repeats of UAS1-XPR2 or UAS1-EYK1 or UAS1-EYD1 were built.

Type of expected transfer

Licence option with R&D programme or licence

Advantages

Post-translational modifications such as glycosylations limit the degradation of proteins by proteases ; The glycosylations are more constant, which make the purification easier ; Stability of genes insterted after the promoter ; Yarrowia lipolytica grows in hydrophobic mediums, for example with faty acids and can accumulate intracellular lipids

Possible applications

Production of proteins, synthetic biology, metabolic engineering

Key words

Yarrowia lipolytica, promoteur, upstream activating sequence, erythritol

TRL Scale

1 2 **3** 4 5 6 7 8 9

Development level

Upstream activating sequences were identified. Their presence increases the expression level.

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