Louvain Technology Transfer Office

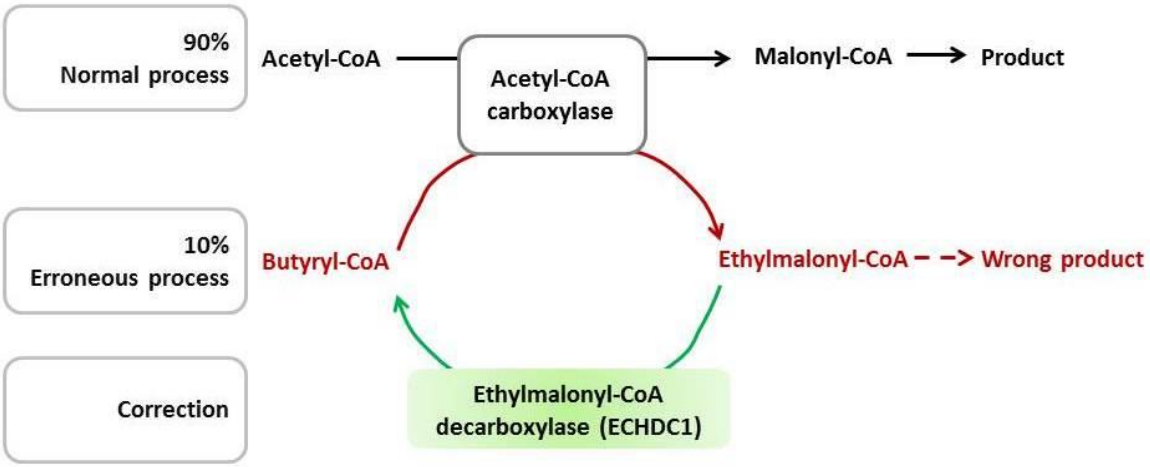
TECHNOLOGY OFFERS | MATERIAL TRANSFER, SOFTWARE, LICENSE, SERVICES

ICT | **BIOTECH / HEALTH** | MATERIALS | GREEN / FOOD

Expression plasmid for ethylmalonyl-CoA-decarboxylase (ECHDC1)

KEYWORDS

- Expression plasmids
- For use in bacteria and yeast



Technology Market :

Cellular production processes using malonyl-CoA

In cellular metabolism, acetyl-CoA is the normal substrate for acetyl-CoA carboxylase. However, in approx. 10% of the reactions, acetyl-CoA carboxylase erroneously uses another substrate, butyryl-CoA, resulting in the formation of potentially toxic ethylmalonyl-CoA (figure). There is a need for removing this metabolite from cellular processes.

The UCL/WELBIO invention

The laboratory of Prof. Emile Van Schaftingen, WELBIO investigator at Université catholique de Louvain (UCL)– de Duve Institute, discovered and cloned ethylmalonyl-CoA decarboxylase (ECHDC1).

This enzyme decarboxylates ethylmalonyl-CoA to butyryl-CoA (figure) and methylmalonyl-CoA to propionyl-CoA.

Ethylmalonyl-CoA decarboxylase (ECHDC1) is described in mammals, but was not identified in bacteria or yeast.

Application :

This material can be used in bacteria or yeast to improve cellular processes using malonyl-CoA (e.g. engineered fatty acid or polyketide synthesis) by preventing the formation of ethyl- or methyl-branches.

Related publications

Linster CL et al. (2011) Ethylmalonyl-CoA decarboxylase, a new enzyme involved in metabolite proofreading. J Biol Chem 286: 42992-43003

Reprint available upon request.

Technology Status

Biomaterial for licensing

Interested to make use of this material?
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