

Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-115269-2

LAST UPDATED: 08 NOV 2019

General information

Name of genetic element

delta-6 elongase

EN

Alternate genetic element name(s) (synonym(s))

polyunsaturated fatty acid specific elongation enzyme 1

EN

Δ 6-elongase

EN

C18 Δ 6-polyunsaturated fatty acid elongase

EN

Abbreviation

D6E (PSE1)

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

No

Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-115268-1](#) ORGANISM | PHYSCOMITRELLA PATENS - SPREADING EARTHMOSS,
PHYSCOMITRELLA MOSS |

Characteristics of the protein coding sequence

Biological function of the protein

Delta-6 elongase is involved in the biosynthesis of polyunsaturated fatty acids and catalyzes the addition of two carbon-hydrogen groups to the carboxyl end of γ -linolenic acid, converting it to dihomio- γ -linolenic acid.

EN

Reactions:

malonyl-CoA + γ -linolenoyl-CoA + H⁺ → 3-oxodihomo γ -linolenoyl-CoA + CO₂ + coenzyme A

malonyl-CoA + stearidonoyl-CoA + H⁺ → (8Z,11Z,14Z,17Z)-3-oxoicosatetraenoyl-CoA + CO₂ + coenzyme A

Related trait(s) or use(s) in biotechnology

Changes in quality and/or metabolite content
Lipid and fatty acids

Additional Information

The sequence encodes a protein of 290 amino acids with an approximate weight of 34 kDa.

EN

Other relevant website addresses and/or attached documents

- ? [Cloning and functional characterisation of an enzyme involved in the elongation of D6-polyunsaturated fatty acids.pdf](#) (*English*)
- ? [Biocyc - C18 Δ6-polyunsaturated fatty acyl-CoA elongase](#) (*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.

Secretariat of the Convention on Biological Diversity

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