

## Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-115645-2

LAST UPDATED: 16 JUL 2020

### General information

Name of genetic element

Delta-4 desaturase

EN

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

$\Delta$ 4-desaturase

EN

D4D

EN

Abbreviation

FAD4

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

No

### Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-115271-1](#) ORGANISM | THRAUSTOCHYTRIUM SP. - THRAUSTOCHYTRIDS |

### Characteristics of the protein coding sequence

Biological function of the protein

Delta-4 desaturase catalyzes the creation of a double bond at the fourth position from the carboxyl end of docosapentaenoic acid (C22:5), converting it into docosahexaenoic acid (C22:6). It was also found that the another substrate for  $\Delta$ 4-desaturase, 22:4 $\omega$ 6, can be parallelly desaturated to 22:5 $\omega$ 6.

EN

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

Changes in quality and/or metabolite content

Lipid and fatty acids

Production of medical or pharmaceutical compounds (human or animal)

Omega-3 fatty acids (e.g. DHA)

## Additional Information

*Thraustochytrium* sp. delta-4 desaturase encodes a polypeptide of 519 amino acids in length and approximately 59 kDa in size.

EN

Other relevant website addresses and/or attached documents

? [Genome Sequencing and Analysis of Thraustochytriidae sp. SZU445 Provides Novel Insights into Polyunsaturated Fatty Acid biosynthesis pathway.pdf](#) ( *English* )

? [GenBank - Sequence 19 from Patent WO2009016208](#) ( *English* )

? [Identification of a Delta 4 fatty acid desaturase from Thraustochytrium sp.pdf](#) ( *English* )

? [The  \$\Delta\$ 4-desaturation pathway for DHA biosynthesis is operative in the human species - Differences between normal controls and children with the Zellweger syndrome.pdf](#) ( *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**

413 rue Saint-Jacques, suite 800

Montreal, Québec, H2Y 1N9

Canada

Fax: +1 514 288-6588

Email: [secretariat@cbd.int](mailto:secretariat@cbd.int)