

## Biosafety Clearing-House (BCH)

GENETIC ELEMENT (GENE)

BCH-GENE-SCBD-115643-1

LAST UPDATED: 15 JUL 2020

### General information

Name of genetic element

Omega-3 desaturase

EN

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

$\omega$ 3 desaturase

EN

OPIN17

EN

$\omega$ 3D

EN

Abbreviation

O3D

EN

Category

Protein coding sequence

Is this genetic element a synthetic molecule?

No

### Donor organism

Donor organism(s)

[BCH-ORGA-SCBD-115642-1](#) ORGANISM | PHYTOPHTHORA INFESTANS - PHYTOPHTHORA BLIGHT |

### Characteristics of the protein coding sequence

Biological function of the protein

Omega-3 desaturase catalyzes the conversion of arachidonic acid (20:4) to eicosapentaenoic acid (20:5) by creating a double bond at the third position from the methyl end of arachidonic acid. Research has indicated that this enzyme converts 31% of arachidonic acid to eicosapentaenoic acid and has greater activity on C20 and C22 fatty acid substrates than on C18 substrates.

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

Omega-3 desaturase is 361 amino acids in length and approximately 41 kDa in size.

EN

Other relevant website addresses and/or attached documents

? [GenBank - Phytophthora infestans T30-4 omega-3 fatty acid desaturase, endoplasmic reticulum, putative \(PITG\\_10063\) mRNA, complete cds \( English \)](#)

? [Stepwise engineering to produce high yields of very long chain polyunsaturated fatty acids in plants.pdf \( English \)](#)

? [Comparison of the Substrate Preferences of  \$\omega\$ 3 Fatty Acid Desaturases for Long Chain Polyunsaturated Fatty Acids.pdf \( English \)](#)

? [Reconstitution of EPA and DHA biosynthesis in Arabidopsis iterative metabolic engineering for the synthesis of n-3 LC-PUFAs in transgenic plants.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.

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