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Datasheet for ABIN3098073

## FADS3 Protein (AA 1-445) (Strep Tag)

### 1 Image

#### Overview

Quantity:	1 mg
Target:	FADS3
Protein Characteristics:	AA 1-445
Origin:	Human
Source:	Tobacco (Nicotiana tabacum)
Protein Type:	Recombinant
Purification tag / Conjugate:	This FADS3 protein is labelled with Strep Tag.
Application:	Western Blotting (WB), SDS-PAGE (SDS), ELISA

#### Product Details

Sequence: MGGVGEPGPR EGPAQPGAPL PTFCWEQIRA HDQPGDKWLVI IERRYDISR WAQRHPGGSR  
LIGHHGAEDA TDAFRAFHQD LNFVRKFLQP LLIGELAPEE PSQDGPLNAQ LVEDFRALHQ  
AAEDMKLFDA SPTFFAFLG HILAMEVLAW LLIYLLGPGW VPSALAAFIL AISQAQSWCL  
QHDLGHASIF KKSWWNHVAQ KFVMGQLKGF SAHWWNFRHF QHHAKPNIFH KDPDVTVAPV  
FLLGESSVEY GKKKRRYLPY NQQHLYFFLI GPPLLTLVNF EVENLAYMLV CMQWADLLWA  
ASFYARFFLS YLPFYGVPGV LFFVAVRVL ESHWFVWITQ MNHIPKEIGH EKHRDWVSSQ  
LAATCNVEPS LFTNWFSGHL NFQIEHHLFP RMPRHNYSRV APLVKSLCAK HGLSYEVKPF  
LTALVDIVRS LKKSVDIWL AYLHQ

**Sequence without tag. The proposed Strep-Tag is based on experience s with the expression system, a different complexity of the protein could make another tag necessary. In case you have a special request, please contact us.**

Characteristics: Key Benefits:

- Made in Germany - from design to production - by highly experienced protein experts.
- Protein expressed with ALiCE® and purified by multi-step, protein-specific process to ensure correct folding and modification.
- These proteins are normally active (enzymatically functional) as our customers have reported (not tested by us and not guaranteed).
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a **made-to-order protein** and will be made for the first time for your order. Our experts in the lab will ensure that you receive a correctly folded protein.

The big advantage of ordering our **made-to-order proteins** in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

#### Expression System:

- ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from *Nicotiana tabacum* c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications.
- During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein!

#### Concentration:

- The concentration of our recombinant proteins is measured using the absorbance at 280nm.
- The protein's absorbance will be measured in several dilutions and is measured against its specific reference buffer.
- We use the Exspasy's ProtParam tool to determine the absorption coefficient of each protein.

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#### Purification:

Two step purification of proteins expressed in Almost Living Cell-Free Expression System (ALiCE®):

1. In a first purification step, the protein is purified from the cleared cell lysate using StrepTag capture material. Eluate fractions are analyzed by SDS-PAGE.
2. Protein containing fractions of the best purification are subjected to second purification step through size exclusion chromatography. Eluate fractions are analyzed by SDS-PAGE and Western blot.

## Product Details

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Purity: >80 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.

Endotoxin Level: Low Endotoxin less than 1 EU/mg (< 0.1 ng/mg)

Grade: Crystallography grade

## Target Details

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Target: FADS3

Alternative Name: FADS3 ([FADS3 Products](#))

Background: Fatty acid desaturase 3 (FADS3) (EC 1.14.19.-) (Delta(13) fatty acid desaturase) (Delta(13) desaturase),FUNCTION: Mammals have different sphingoid bases that differ in their length and/or pattern of desaturation and hydroxyl groups. The predominant sphingoid base that comprises mammalian ceramides is sphing-4-enine (sphingosine or SPH) which has a trans (E) desaturation at carbon 4 (PubMed:31916624, PubMed:31862735). FADS3 is a desaturase that introduces a cis (Z) double bond between carbon 14 and carbon 15 of the sphingoid base (also known as long chain base, LCB), producing LCBs such as sphinga-4,14-dienine (SPD, d18:2(4E,14Z)) from SPH (PubMed:31916624, PubMed:31862735, PubMed:37209771). Prefers SPH-containing ceramides (N-acylsphing-4-enines) as substrates (PubMed:31916624, PubMed:31862735, PubMed:37209771). Capable of metabolizing also the SPH in its free form (PubMed:31862735). SPD ceramides occur widely in mammalian tissues and cells (PubMed:31916624). Due to their unusual structure containing a cis double bond, SPD ceramides may have an opposite, negative role in lipid microdomain formation relative to conventional ceramides (PubMed:31916624). Could be involved in the detoxification of 1-deoxy sphingolipids, by desaturating the cytotoxic 1-deoxysphinganine (1-deoxySA, m18:0), produced under pathological conditions, to 1-deoxysphingenine (1-deoxysphingosine, 1-deoxySO, m18:1) (Probable). Although prefers SPH-containing ceramides (N-acylsphing-4-enines) as substrates, it also exhibits activity toward dihydrosphingosine-containing CERs (N-acylsphinganines) and produces 14Z-SPH-containing sphingolipids, which can be found in patients with DEGS1 mutations (PubMed:37209771). Its desaturase mechanism involves an electron transfer facilitated by cytochrome b5 (PubMed:37209771). FADS3 also acts as a methyl-end fatty acyl coenzyme A (CoA) desaturase that introduces a cis double bond between the preexisting double bond and the terminal methyl group of the fatty acyl chain (By similarity). Desaturates (11E)-octadecenoate (trans-vaccenoate, the predominant trans fatty acid in human milk) at carbon 13 to generate (11E,13Z)-octadecadienoate (also known as conjugated linoleic acid 11E,13Z-CLA) (By similarity). {ECO:0000250|UniProtKB:Q8K1P9, ECO:0000269|PubMed:31862735, ECO:0000269|PubMed:31916624,

## Target Details

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ECO:0000269|PubMed:37209771, ECO:0000305|PubMed:31862735}.

Molecular Weight: 51.1 kDa

UniProt: [Q9Y5Q0](#)

## Application Details

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Application Notes: In addition to the applications listed above we expect the protein to work for functional studies as well. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.

Comment: ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from *Nicotiana tabacum* c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications.

During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein!

Restrictions: For Research Use only

## Handling

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Format: Liquid

Buffer: The buffer composition is at the discretion of the manufacturer. If you have a special request, please contact us.

Handling Advice: Avoid repeated freeze-thaw cycles.

Storage: -80 °C

Storage Comment: Store at -80°C.

Expiry Date: Unlimited (if stored properly)



**Image 1.** „Crystallography Grade“ protein due to multi-step, protein-specific purification process