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Datasheet for ABIN3137018  
**ATG3 Protein (AA 1-314) (Strep Tag)**

### Overview

Quantity:	1 mg
Target:	ATG3
Protein Characteristics:	AA 1-314
Origin:	Mouse
Source:	Tobacco (Nicotiana tabacum)
Protein Type:	Recombinant
Purification tag / Conjugate:	This ATG3 protein is labelled with Strep Tag.
Application:	ELISA, Western Blotting (WB), SDS-PAGE (SDS)

### Product Details

Sequence: MQNVINTVKG KALEVAEYLT PVLKESKFKE TGVITPEEFV AAGDHLVHHC PTWQWATGEE  
LKVKAYLPTD KQFLVTKNVP CYKRCKQMEY SDELEAIIIE DDGDGGWVDT YHNTGITGIT  
EAVKEITLES KDSIKLQDCS ALCDEEDEED EGEAADMEEY EESGLLETDE ATLDTRKIVE  
ACKAKADAGG EDAILQTRTY DLYITYDKYY QTPRLWLFY DEQRQPLTVE HMYEDISQDH  
VKKTVTIENH PHLPPPMCS VHPCRHAEMV KKIIETVAEG GGELGVHMYL LIFLKFVQAV  
IPTIEYDYTR HFTM

**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 Expasy'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.

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Purity:

≥ 80 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.

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## Product Details

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

## Target Details

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Target: ATG3

Alternative Name: Atg3 ([ATG3 Products](#))

Background: Ubiquitin-like-conjugating enzyme ATG3 (EC 2.3.2.-) (Autophagy-related protein 3) (APG3-like),FUNCTION: E2 conjugating enzyme that catalyzes the covalent conjugation of the C-terminal Gly of ATG8-like proteins (GABARAP, GABARAPL1, GABARAPL2 or MAP1LC3A) to the amino group of phosphatidylethanolamine (PE)-containing lipids in the membrane resulting in membrane-bound ATG8-like proteins which is one of the key steps in the development of autophagic isolation membranes during autophagosome formation (PubMed:18768753). Cycles back and forth between binding to ATG7 for loading with the ATG8-like proteins and binding to E3 enzyme, composed of ATG12, ATG5 and ATG16L1 to promote ATG8-like proteins lipidation (By similarity). Also play a role as a membrane curvature sensor that facilitates LC3/GABARAP lipidation by sensing local membrane stress associated with lipid-packing defects as occurs with high molar proportions of conical lipids or strident membrane curvature (PubMed:24747438). Interacts with negatively-charged membranes promoting membrane tethering and enhancing LC3/GABARAP lipidation (By similarity). Also acts as an autocatalytic E2-like enzyme by catalyzing the conjugation of ATG12 to itself in an ATG7-dependent manner, this complex thus formed, plays a role in mitochondrial homeostasis but not in autophagy (PubMed:20723759). ATG12-ATG3 conjugation promotes late endosome to lysosome trafficking and basal autophagosome maturation via its interaction with PDCD6IP (PubMed:25686249). ATG12-ATG3 conjugate is also formed upon vaccinia virus infection, leading to the disruption the cellular autophagy which is not necessary for vaccinia survival and proliferation (PubMed:22024753). Promotes primary ciliogenesis by removing OFD1 from centriolar satellites via the autophagic pathway (PubMed:24089205). {ECO:0000250|UniProtKB:Q9NT62, ECO:0000269|PubMed:18768753, ECO:0000269|PubMed:20723759, ECO:0000269|PubMed:22024753, ECO:0000269|PubMed:24089205, ECO:0000269|PubMed:24747438, ECO:0000269|PubMed:25686249}.

Molecular Weight: 35.8 kDa

UniProt: [Q9CPX6](#)

Pathways: [Autophagy](#)

## 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.

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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!

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**Restrictions:** For Research Use only

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## Handling

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**Format:** Liquid

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

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**Handling Advice:** Avoid repeated freeze-thaw cycles.

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**Storage:** -80 °C

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**Storage Comment:** Store at -80°C.

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**Expiry Date:** Unlimited (if stored properly)

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