

Datasheet for ABIN3083704

MMACHC Protein (AA 1-282) (Strep Tag)



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Overview

Quantity:	250 µg
Target:	MMACHC
Protein Characteristics:	AA 1-282
Origin:	Human
Source:	Cell-free protein synthesis (CFPS)
Protein Type:	Recombinant
Purification tag / Conjugate:	This MMACHC protein is labelled with Strep Tag.
Application:	ELISA, Western Blotting (WB), SDS-PAGE (SDS)

Product Details

Brand:	AlIcE®
Sequence:	MEPKVAELKQ KIEDTLCPFG FEVYPFQVAW YNELLPPAFH LPLPGPTLAF LVLSTPAMFD RALKPFLQSC HLRMLTDPVD QCVAYHLGRV RESLPELQIE IIADYEVHPN RRPKILAQTA AHVAGAAYYY QRQDVEADPW GNQRISGVCI HPRFGGWFAI RGVVLLPGIE VPDLPPrKPH DCPVTRADRI ALLEGFNFW RDWTYRDAVT PQERYSEEQK AYFSTPPAQR LALLGLAQPS EKPSSPSDDL PFTTPAPKKP GNPSRARSWL SPRVSPPASP GP 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.
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Product Details

- Protein expressed with ALiCE® and purified in one-step affinity chromatography
- 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 try to ensure that you receive soluble 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 against its specific reference buffer.
- We use the ExPASy's ProtParam tool to determine the absorption coefficient of each protein.

Purification:	One-step Strep-tag purification of proteins expressed in Almost Living Cell-Free Expression System (ALiCE®).
Purity:	> 70-80 % as determined by SDS PAGE, Western Blot and analytical SEC (HPLC).
Grade:	custom-made

Target Details

Target:	MMACHC
Alternative Name:	MMACHC (MMACHC Products)

Target Details

Background: Cyanocobalamin reductase / alkylcobalamin dealkylase (Alkylcobalamin:glutathione S-alkyltransferase) (EC 2.5.1.151) (CblC) (Cyanocobalamin reductase (cyanide-eliminating)) (EC 1.16.1.6) (Methylmalonic aciduria and homocystinuria type C protein) (MMACHC),FUNCTION: Cobalamin (vitamin B12) cytosolic chaperone that catalyzes the reductive decyanation of cyanocob(III)alamin (cyanocobalamin, CNCbl) to yield cob(II)alamin and cyanide, using FAD or FMN as cofactors and NADPH as cosubstrate (PubMed:18779575, PubMed:19700356, PubMed:21697092, PubMed:25809485). Cyanocobalamin constitutes the inactive form of vitamin B12 introduced from the diet, and is converted into the active cofactors methylcobalamin (MeCbl) involved in methionine biosynthesis, and 5'-deoxyadenosylcobalamin (AdoCbl) involved in the TCA cycle (PubMed:19801555). Forms a complex with the lysosomal transporter ABCD4 and its chaperone LMBRD1, to transport cobalamin across the lysosomal membrane into the cytosol (PubMed:25535791). The processing of cobalamin in the cytosol occurs in a multiprotein complex composed of at least MMACHC, MMADHC, MTRR (methionine synthase reductase) and MTR (methionine synthase) which may contribute to shuttle safely and efficiently cobalamin towards MTR in order to produce methionine (PubMed:21071249, PubMed:27771510). Also acts as a glutathione transferase by catalyzing the dealkylation of the alkylcob(III)alamins MeCbl and AdoCbl, using the thiolate of glutathione for nucleophilic displacement to generate cob(I)alamin and the corresponding glutathione thioether (PubMed:19801555, PubMed:21697092, PubMed:22642810, PubMed:25809485). The conversion of incoming MeCbl or AdoCbl into a common intermediate cob(I)alamin is necessary to meet the cellular needs for both cofactors (PubMed:19801555). Cysteine and homocysteine cannot substitute for glutathione in this reaction (PubMed:19801555). {ECO:0000269|PubMed:18779575, ECO:0000269|PubMed:19700356, ECO:0000269|PubMed:19801555, ECO:0000269|PubMed:21071249, ECO:0000269|PubMed:21697092, ECO:0000269|PubMed:22642810, ECO:0000269|PubMed:25809485, ECO:0000269|PubMed:27771510, ECO:0000303|PubMed:19801555, ECO:0000303|PubMed:25535791}.

Molecular Weight: 31.7 kDa

UniProt: [Q9Y4U1](#)

Application Details

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.

Application Details

Comment:	ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from <i>Nicotiana tabacum</i> 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!
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Restrictions:	For Research Use only
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Handling

Format:	Liquid
Buffer:	The buffer composition is at the discretion of the manufacturer. Standard Storage Buffer: PBS pH 7.4, 10 % Glycerol Might differ depending on protein.
Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-80 °C
Storage Comment:	Store at -80°C.
Expiry Date:	12 months