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# HADHA Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP6882b

## Product Information

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| **Application** | WB, IHC-P, FC, E |
| **Primary Accession** | P40939 |
| **Reactivity** | Human |
| **Predicted** | Bovine, Rabbit, Chicken |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 83000 |
| **Antigen Region** | 737-763 |

## Additional Information

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| **Gene ID** | 3030 |
| **Other Names** | Trifunctional enzyme subunit alpha, mitochondrial, 78 kDa gastrin-binding protein, TP-alpha, Long-chain enoyl-CoA hydratase, Long chain 3-hydroxyacyl-CoA dehydrogenase, HADHA, HADH |
| **Target/Specificity** | This HADHA antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 737-763 amino acids from the C-terminal region of human HADHA. |
| **Dilution** | WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration. |
| **Format** | Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | HADHA Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | HADHA |
| **Synonyms** | HADH |

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| **Function** | Mitochondrial trifunctional enzyme catalyzes the last three of the four reactions of the mitochondrial beta-oxidation pathway (PubMed:1550553, PubMed:29915090, PubMed:30850536, PubMed:8135828, PubMed:31604922). The mitochondrial beta-oxidation pathway is the major energy-producing process in tissues and is performed through cycles of four consecutive reactions (PubMed:29915090). Each beta-oxidation cycle shortens the fatty acyl-CoA by two carbons, yielding one acetyl-CoA (for the citric acid cycle), one FADH(2), and one NADH (which donate electrons to the respiratory chain for ATP production) (PubMed:29915090). These cycles repeat until the chain is fully degraded to acetyl-CoA units (PubMed:29915090). Among the enzymes involved in this pathway, the trifunctional protein--responsible for the hydration, dehydrogenation, and thiolysis steps, shows specificity for long-chain fatty acids, such as those from dietary and stored fats (PubMed:30850536, PubMed:31604922). Mitochondrial trifunctional enzyme is a heterotetrameric complex composed of two proteins, the trifunctional enzyme subunit alpha/HADHA described here carries the 2,3-enoyl-CoA hydratase and the 3-hydroxyacyl-CoA dehydrogenase activities while the trifunctional enzyme subunit beta/HADHB bears the 3-ketoacyl-CoA thiolase activity (Probable) (PubMed:29915090, PubMed:30850536, PubMed:8135828). These activities have been experimentally confirmed on a few substrates derived from beta- oxidation of long-chain saturated fatty acids such as palmitate (hexadecanoate) and laurate (dodecanoate) (PubMed:1550553, PubMed:8135828, PubMed:8163672, PubMed:8651282). In addition, based on its established catalytic mechanism, and combined genetic interaction or mutant phenotype evidence, it is predicted to act also on other substrates, including long-chain unsaturated fatty acids such as oleate (9Z-octadecenoate), linoleate (9Z,12Z-octadecadienoate), linolenate (9Z,12Z,15Z-octadecatrienoate), and others (Probable) (PubMed:26474213). Independently of subunit beta, HADHA also exhibits a cardiolipin acyltransferase activity that participates in cardiolipin remodeling; cardiolipin is a major mitochondrial membrane phospholipid (PubMed:23152787, PubMed:31604922). HADHA may act downstream of Tafazzin/TAZ, that remodels monolysocardiolipin (MLCL) to a cardiolipin intermediate, and then HADHA may continue to remodel this species into mature tetralinoleoyl-cardiolipin (PubMed:31604922). Has also been proposed to act directly on MLCL; capable of acylating MLCL using different acyl-CoA substrates, with highest activity for oleoyl-CoA (PubMed:23152787). |
| **Cellular Location** | Mitochondrion. Mitochondrion inner membrane Note=Protein stability and association with mitochondrion inner membrane do not require HADHB. |

## Background

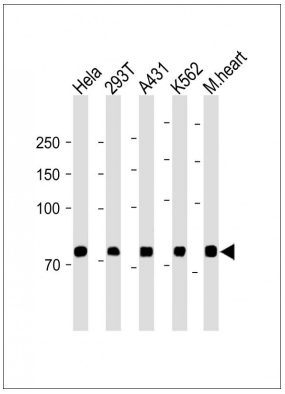
HADHA is the alpha subunit of the mitochondrial trifunctional protein, which catalyzes the last three steps of mitochondrial beta-oxidation of long chain fatty acids. The mitochondrial membrane-bound heterocomplex is composed of four alpha and four beta subunits, with the alpha subunit catalyzing the 3-hydroxyacyl-CoA dehydrogenase and enoyl-CoA hydratase activities.

## References

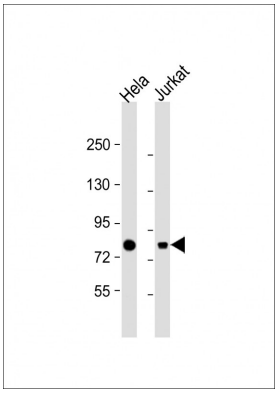
Sims,H.F., et.al., Proc. Natl. Acad. Sci. U.S.A. 92 (3), 841-845 (1995)

## Images

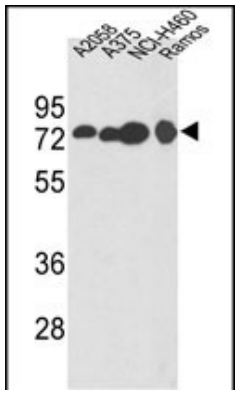
All lanes: Anti-HADHA Antibody (C-term) at 1:2000 dilution Lane 1: Hela whole cell lysate Lane 2: 293T whole



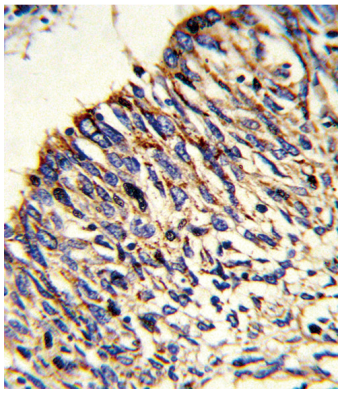

cell lysate Lane 3: A431 whole cell lysate Lane 4: K562 whole cell lysate Lane 5: Mouse heart lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ASP1615) at 1/15000 dilution. Observed band size: 83KDa Blocking/Dilution buffer: 5% NFDM/TBST.




All lanes : Anti-HADHA Antibody (C-term) at 1:1000 dilution Lane 1: Hela whole cell lysate Lane 2: Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 83 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

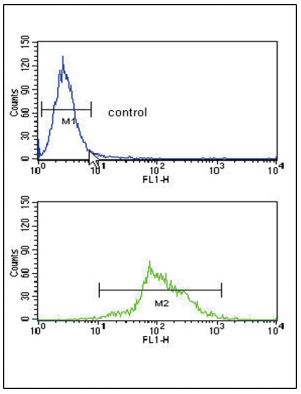



HADHA Antibody (C-term) (Cat. #AP6882b) western blot analysis in A431 cell line lysates (35ug/lane).This demonstrates the HADHA antibody detected the HADHA protein (arrow).



Formalin-fixed and paraffin-embedded human lung carcinoma reacted with HADHA Antibody (C-term), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

HADHA Antibody (C-term) (Cat. #AP6882b) flow cytometry analysis of Ramos cells (bottom histogram) compared to a negative control cell (top histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.




Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.