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ATAD3A Rabbit pAb

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Catalog # AP59147

Product Information

Application	WB
Primary Accession	Q9NVI7
Reactivity	Mouse, Rat
Predicted	Human, Pig, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	66218
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human ATAD3A
Epitope Specificity	351-450/634
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Mitochondrion inner membrane; Single-pass membrane protein. Mitochondrion matrix, mitochondrion nucleoid. Note=In the mitochondrial inner membrane, enriched in sites with the potential to form contacts with the outer membrane. The N-terminal domain interacts with the inner surface of the mitochondrial outer membrane and the C-terminal domain localizes in a specific matrix compartment, where it is associated with nucleoids.
SIMILARITY	Belongs to the AAA ATPase family.
SUBUNIT	Can form homooligomers. Homodimer formation at the N-terminus may be regulated by ATP and is required for the interaction with the inner surface of the mitochondrial outer membrane and correct mitochondrial homeostasis. Interacts with components of the mitochondrial ribosome and with other proteins involved in mitochondrial RNA metabolism. May also interact with protein involved in lipid metabolism, including STARD9. May interact with FAM210A. Interacts with GADD45GIP1. Interacts with S100B in a Ca(+2)- and Zn(+2)-dependent manner; this interaction probably occurs in the cytosol prior to mitochondrial targeting. S100B could assist ATAD3A cytoplasmic processing, preventing aggregation and favoring mitochondrial localization. Interacts with HSP60/HSPD1. Forms heterooligomers with ATAD3B; this interaction may affect ATAD3A activity.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The AAA ATPase family of molecular chaperones are characterized by a highly conserved AAA motif. Composed of 200-250 residues, the AAA domain contains Walker homology sequences and imparts ATPase activity. Members of the AAA ATPase family act as DNA helicases as well as transcription factors and are thought to be involved in several cellular functions such as cell-cycle regulation, protein proteolysis, organelle biogenesis and vesicle-mediated protein transport. Mitochondrial membrane proteins ATAD3A and ATAD3B contribute to the stabilization of nucleoids which are large mitochondrial DNA (mtDNA)-protein complexes. ATAD3A/B may participate in the transformation

pathway and the chemosensitivity of oligodendrogliomas. The genes encoding ATAD3A/B/C maps to human chromosome 1, which houses over 3,000 genes and is the largest human chromosome spanning about 260 million base pairs and making up 8% of the human genome.

Additional Information

Gene ID	55210
Other Names	ATPase family AAA domain-containing protein 3A, 3.6.1.-, ATAD3A {ECO:0000303|PubMed:37832546, ECO:0000312|HGNC:HGNC:25567}
Target/Specificity	Overexpressed in lung adenocarcinomas (at protein level).
Dilution	WB=1:500-2000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

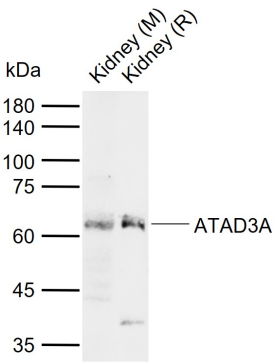
Protein Information

Name	ATAD3A {ECO:0000303|PubMed:37832546, ECO:0000312|HGNC:HGNC:25567}
Function	Essential for mitochondrial network organization, mitochondrial metabolism and cell growth at organism and cellular level (PubMed:17210950, PubMed:20154147, PubMed:22453275, PubMed:31522117, PubMed:37832546, PubMed:39116259). May play an important role in mitochondrial protein synthesis (PubMed:22453275). May also participate in mitochondrial DNA replication (PubMed:17210950). May bind to mitochondrial DNA D-loops and contribute to nucleoid stability (PubMed:17210950). Required for enhanced channeling of cholesterol for hormone-dependent steroidogenesis (PubMed:22453275). Involved in mitochondrial-mediated antiviral innate immunity (PubMed:31522117). Required to protect mitochondria from the PERK-mediated unfolded protein response: specifically inhibits the activity of EIF2AK3/PERK at mitochondria-endoplasmic reticulum contact sites, thereby providing a safe haven for mitochondrial protein translation during endoplasmic reticulum stress (PubMed:39116259). Ability to inhibit EIF2AK3/PERK is independent of its ATPase activity (PubMed:39116259). Also involved in the mitochondrial DNA damage response by promoting signaling between damaged genomes and the mitochondrial membrane, leading to activation of the integrated stress response (ISR) (PubMed:37832546).
Cellular Location	Mitochondrion inner membrane; Single-pass membrane protein. Mitochondrion matrix, mitochondrion nucleoid Note=In the mitochondrial inner membrane, enriched in sites with the potential to form contacts with the outer membrane (PubMed:20154147, PubMed:20349121). The N-terminal domain interacts with the inner surface of the mitochondrial outer membrane and the C-terminal domain localizes in a specific matrix compartment, where it is associated with nucleoids (PubMed:18063578). Also present at mitochondria-endoplasmic reticulum contact sites; where it interacts with EIF2AK3/PERK (PubMed:39116259).
Tissue Location	Overexpressed in lung adenocarcinomas (at protein level).

Background

The AAA ATPase family of molecular chaperones are characterized by a highly conserved AAA motif. Composed of 200-250 residues, the AAA domain contains Walker homology sequences and imparts ATPase activity. Members of the AAA ATPase family act as DNA helicases as well as transcription factors and are thought to be involved in several cellular functions such as cell-cycle regulation, protein proteolysis, organelle biogenesis and vesicle-mediated protein transport. Mitochondrial membrane proteins ATAD3A and ATAD3B contribute to the stabilization of nucleoids which are large mitochondrial DNA (mtDNA)-protein complexes. ATAD3A/B may participate in the transformation pathway and the chemosensitivity of oligodendrogliomas. The genes encoding ATAD3A/B/C maps to human chromosome 1, which houses over 3,000 genes and is the largest human chromosome spanning about 260 million base pairs and making up 8% of the human genome.

Images



Sample:
Lane 1: Mouse Kidney tissue lysates
Lane 2: Rat Kidney tissue lysates
Primary: Anti-ATAD3A (AP59147) at 1/1000 dilution
Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution
Predicted band size: 71 kDa
Observed band size: 62 kDa

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