

# ATAD3A/B/C (A-4): sc-376185



The Power to Question

## 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.

## CHROMOSOMAL LOCATION

Genetic locus: ATAD3A/ATAD3B/ATAD3C (human) mapping to 1p36.33; Atad3a (mouse) mapping to 4 E2.

## SOURCE

ATAD3A/B/C (A-4) is a mouse monoclonal antibody raised against amino acids 407-634 mapping at the C-terminus of ATAD3A of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ATAD3A/B/C (A-4) is available conjugated to agarose (sc-376185 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376185 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376185 PE), fluorescein (sc-376185 FITC), Alexa Fluor® 488 (sc-376185 AF488), Alexa Fluor® 546 (sc-376185 AF546), Alexa Fluor® 594 (sc-376185 AF594) or Alexa Fluor® 647 (sc-376185 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376185 AF680) or Alexa Fluor® 790 (sc-376185 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

ATAD3A/B/C (A-4) is recommended for detection of ATAD3A, ATAD3B and ATAD3C of human origin, and ATAD3A of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ATAD3A siRNA (m): sc-105102, ATAD3A shRNA Plasmid (m): sc-105102-SH and ATAD3A shRNA (m) Lentiviral Particles: sc-105102-V.

Molecular Weight of ATAD3A/ATAD3B/ATAD3C: 71/73/46 kDa.

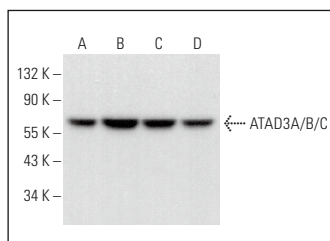
Molecular Weight of ATAD3A mouse isoforms: 67/57 kDa.

Positive Controls: A549 cell lysate: sc-2413 or HeLa whole cell lysate: sc-2200.

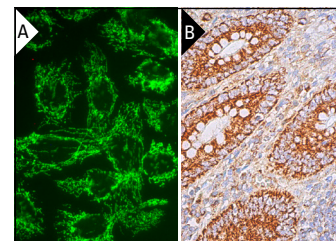
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA



ATAD3A/B/C (A-4): sc-376185. Western blot analysis of ATAD3A/B/C expression in Jurkat (A), K-562 (B), HeLa (C) and A549 (D) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



ATAD3A/B/C (A-4): sc-376185. Immunofluorescence staining of formalin-fixed A-431 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

- Chen, D., et al. 2018. Mitochondrial ATAD3A regulates milk biosynthesis and proliferation of mammary epithelial cells from dairy cow via the mTOR pathway. *Cell Biol. Int.* 42: 533-542.
- Yoshinaka, T., et al. 2019. Structural basis of mitochondrial scaffolds by prohibitin complexes: insight into a role of the coiled-coil region. *iScience* 19: 1065-1078.
- Huang, K.C., et al. 2021. ATAD3A stabilizes GRP78 to suppress ER stress for acquired chemoresistance in colorectal cancer. *J. Cell. Physiol.* 236: 6481-6495.
- Lepelletier, A., et al. 2021. Enhanced cGAS-STING-dependent interferon signaling associated with mutations in ATAD3A. *J. Exp. Med.* 218: e20201560.
- Arguello, T., et al. 2021. ATAD3A has a scaffolding role regulating mitochondria inner membrane structure and protein assembly. *Cell Rep.* 37: 110139.
- Di Rienzo, M., et al. 2022. AMBRA1 regulates mitophagy by interacting with ATAD3A and promoting PINK1 stability. *Autophagy* 18: 1752-1762.
- Li, Q., et al. 2022. The oncoprotein MUC1 facilitates breast cancer progression by promoting Pink1-dependent mitophagy via ATAD3A destabilization. *Cell Death Dis.* 13: 899.
- He, B., et al. 2022. Mitochondrial cristae architecture protects against mtDNA release and inflammation. *Cell Rep.* 41: 111774.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

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