SANTA CRUZ BIOTECHNOLOGY, INC.

ATPIF1 (A-3): sc-271614

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mitochondrial ATP synthases (ATPases) transduce the energy contained in membrane electrochemical proton gradients into the energy required for synthesis of high-energy phosphate bonds. ATPases contain two linked complexes: F_1, the hydrophilic catalytic core; and F_0, the membrane-embedded protein channel. F_1 consists of three α chains and three β chains, which are weakly homologous, as well as one γ chain, one δ chain and one ε chain. F_0 consists of three subunits: a, b and c. A mitochondrial F_1-ATPase inhibitor protein, ATPIF1 (ATPase inhibitory factor 1), also known as IP, IF_1, ATPI or ATPIP (ATPase inhibitor protein), binds to the C-terminal region of a β subunit of the F_1-ATPase at low pH values and, via interference of the β and γ subunit interaction, ATPIF1 regulates the activity of the F_1F_0-ATPase. This reversible ATPIF1 binding to F_1F_0-ATPase also occurs on the surface of endothelial cells.

REFERENCES

1. Ichikawa, N., et al. 1999. Nucleotide sequence of cDNA coding the mitochondrial precursor protein of the ATPase inhibitor from humans. Biosci. Biotechnol. Biochem. 63: 2225-2227.
2. Cabezón, E., et al. 2001. The structure of bovine IF_1, the regulatory subunit of mitochondrial F-ATPase. EMBO J. 20: 6990-6996.
3. Contessi, S., et al. 2005. Identification of a conserved calmodulin-binding motif in the sequence of F_1F_0 ATPsynthase inhibitor protein. J. Bioenerg. Biomembr. 37: 317-326.
4. Cortés-Hernández, P., et al. 2005. The inhibitor protein of the F_1F_0-ATP synthase is associated to the external surface of endothelial cells. Biochem. Biophys. Res. Commun. 330: 844-849.

CHROMOSOMAL LOCATION

Genetic locus: ATPIF1 (human) mapping to 1p35.3.

SOURCE

ATPIF1 (A-3) is a mouse monoclonal antibody raised against amino acids 1-106 representing full length ATPIF1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ATPIF1 (A-3) is available conjugated to agarose (sc-271614 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271614 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271614 PE), fluorescein (sc-271614 FITC), Alexa Fluor® 488 (sc-271614 AF488), Alexa Fluor® 546 (sc-271614 AF546), Alexa Fluor® 594 (sc-271614 AF594) or Alexa Fluor® 647 (sc-271614 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271614 AF680) or Alexa Fluor® 790 (sc-271614 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

ATPIF1 (A-3) is recommended for detection of ATPIF1 of human 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 ATPIF1 siRNA (h): sc-78711, ATPIF1 shRNA Plasmid (h): sc-78711-SH and ATPIF1 shRNA (h) Lentiviral Particles: sc-78711-V.

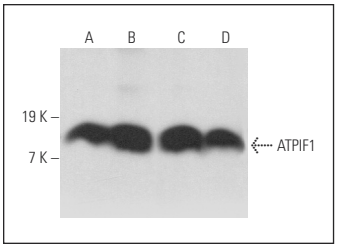
Molecular Weight of ATPIF1: 12 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, HEK293T whole cell lysate: sc-45137 or U266 whole cell lysate: sc-364800.

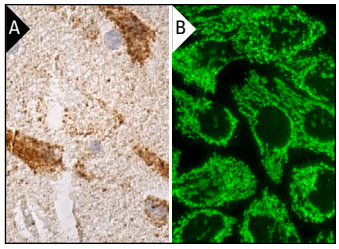
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



ATPIF1 (A-3): sc-271614. Western blot analysis of ATPIF1 expression in MCF7 (**A**), HEK293T (**B**), U266 (**C**) and HEK293 (**D**) whole cell lysates.



ATPIF1 (A-3): sc-271614. Immunoperoxidase staining of formalin fixed, paraffin-embedded human brain tissue showing cytoplasmic staining of neuronal cells (**A**). Immunofluorescence staining of formalin-fixed A-431 cells showing mitochondrial localization (**B**).

SELECT PRODUCT CITATIONS

1. Elshaarawy, R.F.M., et al. 2020. Role of Pd(II)-chitooligosaccharides-Gboxin analog in oxidative phosphorylation inhibition and energy depletion: targeting mitochondrial dynamics. Chem. Biol. Drug Des. 96: 1148-1161.

RESEARCH USE

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