SANTA CRUZ BIOTECHNOLOGY, INC.

ATPIF1 (S-12): sc-162558

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, IF1, 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.
5. Burwick, N.R., et al. 2005. An inhibitor of the F_1 subunit of ATP synthase (IF1) modulates the activity of angiostatin on the endothelial cell surface. J. Biol. Chem. 280: 1740-1745.

CHROMOSOMAL LOCATION

Genetic locus: ATPIF1 (human) mapping to 1p35.3; Atpif1 (mouse) mapping to 4 D2.3.

SOURCE

ATPIF1 (S-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of ATPIF1 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-162558 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ATPIF1 (S-12) is recommended for detection of ATPIF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 siRNA (m): sc-141374, ATPIF1 shRNA Plasmid (h): sc-78711-SH, ATPIF1 shRNA Plasmid (m): sc-141374-SH, ATPIF1 shRNA (h) Lentiviral Particles: sc-78711-V and ATPIF1 shRNA (m) Lentiviral Particles: sc-141374-V.

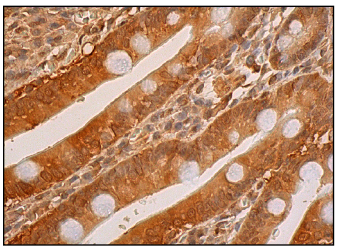
Molecular Weight of ATPIF1: 12 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, NIH/3T3 whole cell lysate: sc-2210 or 3T3-L1 cell lysate: sc-2243.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



ATPIF1 (S-12): sc-162558. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic and nuclear staining of glandular cells and interstitial cells.

RESEARCH USE

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