SANTA CRUZ BIOTECHNOLOGY, INC.

ATPIF1 (FL-106): sc-134961

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

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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.
6. Gledhill, J.R. and Walker, J.E. 2006. Inhibitors of the catalytic domain of mitochondrial ATP synthase. Biochem. Soc. Trans. 34: 989-992.
7. García, J.J., et al. 2006. The inhibitor protein (IF1) promotes dimerization of the mitochondrial F_1F_0-ATP synthase. Biochemistry 45: 12695-12703.

CHROMOSOMAL LOCATION

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

SOURCE

ATPIF1 (FL-106) is a rabbit polyclonal antibody raised against amino acids 1-106 representing full length ATPIF1 of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

ATPIF1 (FL-106) is recommended for detection of ATPIF1 of human origin by Western Blotting (starting dilution 1:200, 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.

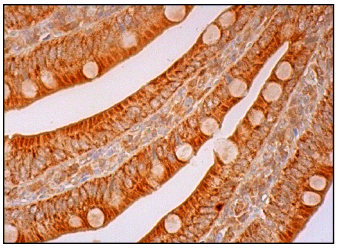
Molecular Weight of ATPIF1: 12 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



ATPIF1 (FL-106): sc-134961. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic staining of glandular cells.

RESEARCH USE

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