SANTA CRUZ BIOTECHNOLOGY, INC.

ATPAF1 (H-157): sc-134960

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The Power to Question

BACKGROUND

The mitochondrial ATP synthases transduce the energy contained in the membrane's electrochemical proton gradients into the energy required for synthesis of high-energy phosphate bonds. F_1 is the hydrophilic domain of ATPase that has three identical α subunits, three identical beta subunits and three additional subunits. Each ATPase contains three catalytic sites for synthesis, with one site located in each of the three β subunits. ATPAF1 (ATP synthase mitochondrial F_1 complex assembly factor 1), also known as its yeast homolog Atp11p, is a 328 amino acid mitochondrial protein that is required for the assembly of F_1-β and F_1-α subunits into the mitochondrial ATPase. Both ATPAF1 and ATPAF2 are broadly conserved in eukaryotes and are widely expressed, suggesting that they are essential housekeeping proteins. Due to their influence on enzyme assembly, it has been suggested that evaluation of ATPAF1 and ATPAF2 may be of interest in patients with ATP synthase deficiencies in which the underlying biochemical defect is unknown.

REFERENCES

1. Wang, Z.G. and Ackerman, S.H. 1996. Identification of functional domains in Atp11p. Protein required for assembly of the mitochondrial F_1-ATPase in yeast. J. Biol. Chem. 271: 4887-4894.
2. Wang, Z.G. and Ackerman, S.H. 2000. The assembly factor Atp11p binds to the β-subunit of the mitochondrial F_1-ATPase. J. Biol. Chem. 275: 5767-5772.
3. Wang, Z.G., White, P.S. and Ackerman, S.H. 2001. Atp11p and Atp12p are assembly factors for the F_1-ATPase in human mitochondria. J. Biol. Chem. 276: 30773-30778.
4. Sheluho, D. and Ackerman, S.H. 2001. An accessible hydrophobic surface is a key element of the molecular chaperone action of Atp11p. J. Biol. Chem. 276: 39945-39949.
5. Ackerman, S.H. 2002. Atp11p and Atp12p are chaperones for F_1-ATPase biogenesis in mitochondria. Biochim. Biophys. Acta 1555: 101-105.
6. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608917. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Picková, A., Paul, J., Petruzzella, V. and Houstek, J. 2003. Differential expression of ATPAF1 and ATPAF2 genes encoding F_1-ATPase assembly proteins in mouse tissues. FEBS Lett. 551: 42-46.
8. Pícková, A., Potocký, M. and Houstek, J. 2005. Assembly factors of F1FO-ATP synthase across genomes. Proteins 59: 393-402.
9. Ludlam, A., Brunzelle, J., Pribyl, T., Xu, X., Gatti, D.L. and Ackerman, S.H. 2009. Chaperones of F_1-ATPase. J. Biol. Chem. 284: 17138-17146.

CHROMOSOMAL LOCATION

Genetic locus: ATPAF1 (human) mapping to 1p33; Atpaf1 (mouse) mapping to 4 D1.

SOURCE

ATPAF1 (H-157) is a rabbit polyclonal antibody raised against amino acids 74-230 mapping within an internal region of ATPAF1 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.

APPLICATIONS

ATPAF1 (H-157) is recommended for detection of ATPAF1 of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ATPAF1 (H-157) is also recommended for detection of ATPAF1 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for ATPAF1 siRNA (h): sc-78578, ATPAF1 siRNA (m): sc-141370, ATPAF1 shRNA Plasmid (h): sc-78578-SH, ATPAF1 shRNA Plasmid (m): sc-141370-SH, ATPAF1 shRNA (h) Lentiviral Particles: sc-78578-V and ATPAF1 shRNA (m) Lentiviral Particles: sc-141370-V.

Molecular Weight (predicted) of ATPAF1: 36 kDa.

Molecular Weight (observed) of ATPAF1: 28-32 kDa.

Positive Controls: SJRH30 cell lysate: sc-2287, Sol8 cell lysate: sc-2249 or Hep G2 cell lysate: sc-2227.

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.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.