SANTA CRUZ BIOTECHNOLOGY, INC.

ATP5B (F-1): sc-166462

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mitochondrial ATP synthase is composed of two multi-subunit complexes that utilize an inner membrane electrochemical gradient to catalyze the synthesis of ATP during oxidative phosphorylation. The two multi-subunit complexes are designated F_1 and F_0, the former of which comprises the soluble catalytic core and the latter of which comprises the membrane-spanning proton channel of ATP synthase. F_1 consists of five distinct subunits, designated ATP5A, ATP5B, ATP5C1, ATP5D and ATP5E, while F_0 consists of ten subunits, designated ATP5H, ATP5G1, ATP5I, ATP5G2, ATP5J2, ATP5J, ATP5G3, ATP5S, ATP5F1 and ATP5L. ATP5B, also designated ATPMB, ATPSB or mitochondrial ATP synthetase, β subunit, is a 529 amino acid protein that localizes to the mitochondrial membrane and exists as a subunit of the F_0 complex. ATP5B is encoded by a nuclear gene and assembled with the other subunits encoded by both mitochondrial and nuclear genes. The ATP5B gene is activated by members of the Ets family of transcription factors, suggesting that Ets transcription factors are involved in the enhanced expression of the ATP5B gene in highly proliferating cells and in the coordinate transcription of nuclear genes for mitochondrial proteins. ATP5B mRNA levels vary among species through transcriptional control with high expression levels in heart, lower levels in skeletal muscle and the lowest levels in liver and kidney.

REFERENCES

1. Ohta, S. and Kagawa, Y. 1986. Human F_1-ATPase: molecular cloning of cDNA for the β subunit. J. Biochem. 99: 135-141.
2. Neckelmann, N., et al. 1989. The human ATP synthase β subunit gene: sequence analysis, chromosome assignment, and differential expression. Genomics 5: 829-843.
3. Rouslin, W. 1991. Regulation of the mitochondrial ATPase *in situ* in cardiac muscle: role of the inhibitor subunit. J. Bioenerg. Biomembr. 23: 873-888.
4. LaNaue, K.F., et al. 1992. Kinetic studies of ATP synthase: the case for the positional change mechanism. J. Bioenerg. Biomembr. 24: 499-506.

CHROMOSOMAL LOCATION

Genetic locus: ATP5B (human) mapping to 12q13.3; Atp5b (mouse) mapping to 10 D3.

SOURCE

ATP5B (F-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 491-530 at the C-terminus of ATP5B 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.

Blocking peptide available for competition studies, sc-166462 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

ATP5B (F-1) is recommended for detection of ATP5B of mouse, rat and 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).

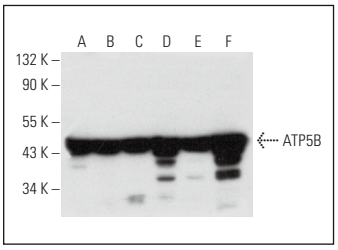
ATP5B (F-1) is also recommended for detection of ATP5B in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for ATP5B siRNA (h): sc-40565, ATP5B siRNA (m): sc-40566, ATP5B shRNA Plasmid (h): sc-40565-SH, ATP5B shRNA Plasmid (m): sc-40566-SH, ATP5B shRNA (h) Lentiviral Particles: sc-40565-V and ATP5B shRNA (m) Lentiviral Particles: sc-40566-V.

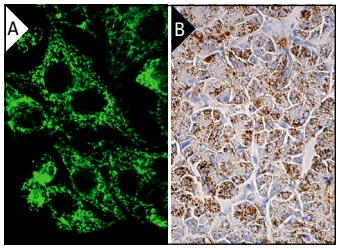
Molecular Weight of ATP5B: 51 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, NIH/3T3 whole cell lysate: sc-2210 or Caki-1 cell lysate: sc-2224.

DATA



ATP5B (F-1): sc-166462. Western blot analysis of ATP5B expression in Jurkat (**A**), Caki-1 (**B**), NIH/3T3 (**C**), RAW 264.7 (**D**), NRK (**E**) and RIN-m5F (**F**) whole cell lysates.



ATP5B (F-1): sc-166462. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Wei, Y., et al. 2017. Prohibitin 2 is an inner mitochondrial membrane mitophagy receptor. Cell 168: 224-238.
2. Moreno-Sánchez, R., et al. 2021. Regulatory role of acetylation on enzyme activity and fluxes of energy metabolism pathways. Biochim. Biophys. Acta Gen. Subj. 1865: 130021.
3. Fan, Y., et al. 2022. PINK1/TAX1BP1-directed mitophagy attenuates vascular endothelial injury induced by copper oxide nanoparticles. J. Nanobiotechnology 20: 149.
4. Sharma, R.K., et al. 2023. Aurora kinase A/AURKA functionally interacts with the mitochondrial ATP synthase to regulate energy metabolism and cell death. Cell Death Discov. 9: 203.

RESEARCH USE

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