SANTA CRUZ BIOTECHNOLOGY, INC.

ATP5B (E-1): sc-55597

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.

CHROMOSOMAL LOCATION

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

SOURCE

ATP5B (E-1) is a mouse monoclonal antibody raised against amino acids 230-529 mapping 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.

ATP5B (E-1) is available conjugated to agarose (sc-55597 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55597 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55597 PE), fluorescein (sc-55597 FITC), Alexa Fluor® 488 (sc-55597 AF488), Alexa Fluor® 546 (sc-55597 AF546), Alexa Fluor® 594 (sc-55597 AF594) or Alexa Fluor® 647 (sc-55597 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55597 AF680) or Alexa Fluor® 790 (sc-55597 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

PROTOCOLS

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

APPLICATIONS

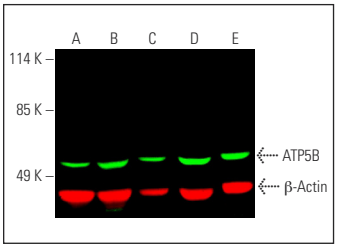
ATP5B (E-1) is recommended for detection of ATP5B of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

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.

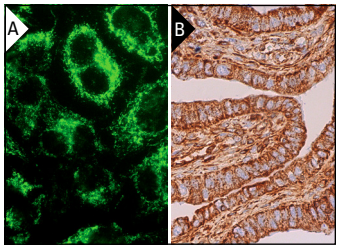
Molecular Weight of ATP5B: 51 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, Jurkat whole cell lysate: sc-2204 or HeLa whole cell lysate: sc-2200.

DATA



Simultaneous direct near-infrared western blot analysis of ATP5B expression, detected with ATP5B (E-1) Alexa Fluor® 680: sc-55597 AF680 and β-Actin expression, detected with β-Actin (C4) Alexa Fluor® 790: sc-47778 AF790 in Caki-1 (**A**), Jurkat (**B**), JAR (**C**), HeLa (**D**) and RAW 264.7 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



ATP5B (E-1): sc-55597. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Lee, D. and Goldberg, A.L. 2013. SIRT1 protein, by blocking the activities of transcription factors FOXO1 and FOXO3, inhibits muscle atrophy and promotes muscle growth. J. Biol. Chem. 288: 30515-30526.
2. Chung, I.C., et al. 2019. Mitochondrial oxidative phosphorylation complex regulates NLRP3 inflammasome activation and predicts patient survival in nasopharyngeal carcinoma. Mol. Cell. Proteomics 19: 142-154.
3. Kim, M., et al. 2020. Sestrins are evolutionarily conserved mediators of exercise benefits. Nat. Commun. 11: 190.
4. Wu, H., et al. 2021. Icaritin provides neuroprotection in Parkinson's disease by attenuating neuroinflammation, oxidative stress, and energy deficiency. Antioxidants 10: 529.
5. Falavinha, B.C., et al. 2022. Interleukin 21 receptor affects adipogenesis of human adipose-derived stem/stromal cells. Stem Cells Int. 2022: 4930932.

RESEARCH USE

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