## SANTA CRUZ BIOTECHNOLOGY, INC.

# ATPIF1 (A-3): sc-271614



## 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<sub>1</sub>, the hydrophilic catalytic core; and F<sub>0</sub>, the membrane-embedded protein channel. F<sub>1</sub> consists of three  $\alpha$  chains and three  $\beta$  chains, which are weakly homologous, as well as one  $\gamma$  chain, one  $\delta$  chain and one  $\epsilon$  chain. F<sub>0</sub> consists of three subunits: a, b and c. A mitochondrial F<sub>1</sub>-ATPase inhibitor protein, ATPIF1 (ATPase inhibitory factor 1), also known as IP, IF<sub>1</sub>, ATPI or ATPIP (ATPase inhibitor protein), binds to the C-terminal region of a  $\beta$  subunit of the F<sub>1</sub>-ATPase at low pH values and, via interference of the  $\beta$  and  $\gamma$  subunit interaction, ATPIF1 regulates the activity of the F<sub>1</sub>F<sub>0</sub>-ATPase. This reversible ATPIF1 binding to F<sub>1</sub>F<sub>0</sub>-ATPase also occurs on the surface of endothelial cells.

## **CHROMOSOMAL LOCATION**

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

## SOURCE

ATPIF1 (A-3) is a mouse monoclonal antibody raised against amino acids 1-106 representing full length ATPIF1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ATPIF1 (A-3) is available conjugated to agarose (sc-271614 AC), 500 μg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271614 HRP), 200 μg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271614 PE), fluorescein (sc-271614 FITC), Alexa Fluor<sup>®</sup> 488 (sc-271614 AF488), Alexa Fluor<sup>®</sup> 546 (sc-271614 AF546), Alexa Fluor<sup>®</sup> 594 (sc-271614 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-271614 AF647), 200 μg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-271614 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-271614 AF790), 200 μg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## **APPLICATIONS**

ATPIF1 (A-3) is recommended for detection of ATPIF1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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, HEK293T whole cell lysate: sc-45137 or U266 whole cell lysate: sc-364800.

#### **RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 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 m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

#### DATA





ATPIF1 (A-3): sc-271614. Western blot analysis of ATPIF1 expression in MCF7 (A), HEK293T (B), U266 (C) and HEK293 (D) whole cell lysates.

ATPIF1 (A-3): sc-271614. Immunoperoxidase staining of formalin fixed, paraffin-embedded human brain tissue showing cytoplasmic staining of neuronal cells (**A**). Immunofluorescence staining of formalin-fixed A-431 cells showing mitochondrial localization (**B**).

## **SELECT PRODUCT CITATIONS**

- Elshaarawy, R.F.M., et al. 2020. Role of Pd(II)-chitooligosaccharides-Gboxin analog in oxidative phosphorylation inhibition and energy depletion: targeting mitochondrial dynamics. Chem. Biol. Drug Des. 96: 1148-1161.
- 2. Chouhan, S., et al. 2023. TNK2/ACK1-mediated phosphorylation of ATP5F1A (ATP synthase F1 subunit  $\alpha$ ) selectively augments survival of prostate cancer while engendering mitochondrial vulnerability. Autophagy 19: 1000-1025.

#### **STORAGE**

Store at 4° C, \*\*D0 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 for detailed protocols and support products.