SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase A1 (E-8): sc-374475

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The subunit of the vacuolar proton pump is a V-ATPase that has two different isoforms. The type I isoform contains an 18-base pair insert and is expressed in brain, whereas the truncated type II isoform is more widely expressed, including lung, kidney and spleen. The subunit of the vacuolar proton pump is located in clathrin-coated vesicles and is also found in osteoclasts. It consists of two fundamental domains, a hydrophilic amino-terminus, which has greater than 30% charged residues, and a hydrophobic carboxy terminus, which contains at least six transmembrane regions. The proton pump functions in coupling ATP hydrolysis by the cytoplasmic subunits to proton translocation by the intramembranous components of the pump. The inactivation of the osteoclast-specific vacuolar proton ATPase subunit is responsible for the lack of the enzyme in the apical membranes of osteoclast cells in osteosclerotic mutant mice, thus preventing the resorption function of these cells and leading to the osteopetrotic phenotype. The subunit, which co-localizes with the late endosomal marker Rab7 on vacuolar membranes, is essential for vacuole formation by selective swelling of late endosomes.

REFERENCES

1. Perin, M.S., et al. 1991. Structure of the 116-kDa polypeptide of the clathrin-coated vesicle/synaptic vesicle proton pump. J. Biol. Chem. 266: 3877-3881.
2. Peng, S.B., et al. 1994. Alternative mRNA splicing generates tissue-specific isoforms of 116-kDa polypeptide of vacuolar proton pump. J. Biol. Chem. 269: 17262-17266.

CHROMOSOMAL LOCATION

Genetic locus: ATP6V0A1 (human) mapping to 17q21.2; Atp6v0a1 (mouse) mapping to 11 D.

SOURCE

V-ATPase A1 (E-8) is a mouse monoclonal antibody raised against amino acids 71-210 mapping within a cytoplasmic domain of V-ATPase A1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

V-ATPase A1 (E-8) is available conjugated to agarose (sc-374475 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-374475 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374475 PE), fluorescein (sc-374475 FITC), Alexa Fluor® 488 (sc-374475 AF488), Alexa Fluor® 546 (sc-374475 AF546), Alexa Fluor® 594 (sc-374475 AF594) or Alexa Fluor® 647 (sc-374475 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374475 AF680) or Alexa Fluor® 790 (sc-374475 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

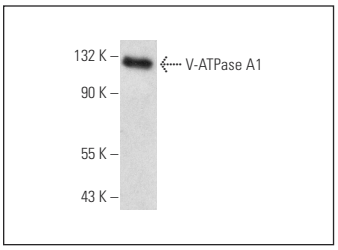
V-ATPase A1 (E-8) is recommended for detection of V-ATPase A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution 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).
V-ATPase A1 (E-8) is also recommended for detection of V-ATPase A1 in additional species, including equine, bovine, porcine and canine.

Suitable for use as control antibody for V-ATPase A1 siRNA (h): sc-42686, V-ATPase A1 siRNA (m): sc-42687, V-ATPase A1 shRNA Plasmid (h): sc-42686-SH, V-ATPase A1 shRNA Plasmid (m): sc-42687-SH, V-ATPase A1 shRNA (h) Lentiviral Particles: sc-42686-V and V-ATPase A1 shRNA (m) Lentiviral Particles: sc-42687-V.

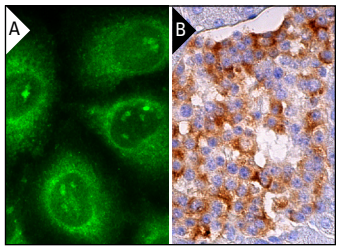
Molecular Weight of V-ATPase A1: 116 kDa.

Positive Controls: C6 whole cell lysate: sc-364373 or SK-N-MC cell lysate: sc-2237.

DATA



V-ATPase A1 (E-8): sc-374475. Western blot analysis of V-ATPase A1 expression in C6 whole cell lysate.



V-ATPase A1 (E-8): sc-374475. 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 Islets of Langerhans (**B**).

SELECT PRODUCT CITATIONS

1. Namkoong, S., et al. 2015. The integral membrane protein ITM2A, a transcriptional target of PKA-CREB, regulates autophagic flux via interaction with the vacuolar ATPase. Autophagy 11: 756-768.
2. Gautam, U.S., et al. 2019. *Mycobacterium tuberculosis* sensor kinase DosS modulates the autophagosome in a DosR-independent manner. Commun. Biol. 2: 349.
3. Zhong, B., et al. 2020. Caspase-8 induces lysosome-associated cell death in cancer cells. Mol. Ther. 28: 1078-1091.
4. Tavares-Valente, D., et al. 2021. Disruption of pH dynamics suppresses proliferation and potentiates doxorubicin cytotoxicity in breast cancer cells. Pharmaceutics 13: 242.

STORAGE

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