SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase A1 (L-20): sc-14756

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 colocalizes with the late endosomal marker Rab 7 on vacuolar membranes, is essential for vacuole formation by selectively 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.
3. Papini, E., et al. 1996. The vacuolar ATPase proton pump is present on intracellular vacuoles induced by *Helicobacter pylori*. J. Med. Microbiol. 45: 84-89.
4. Peng, S.B., et al. 1999. Identification and reconstitution of an isoform of the 116-kDa subunit of the vaculor proton translocating ATPase. J. Biol. Chem. 274: 2549-2555.
5. Scimeca, J.C., et al. 2000. The gene encoding the mouse homologue of the human osteoclast-specific 116-kDa V-ATPase subunit bears a deletion in osteosclerotic (oc/oc) mutants. Bone 26: 207-213.

CHROMOSOMAL LOCATION

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

SOURCE

V-ATPase A1 (L-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of V-ATPase A1 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.

Blocking peptide available for competition studies, sc-14756 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

V-ATPase A1 (L-20) is recommended for detection of V-ATPase A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

V-ATPase A1 (L-20) is also recommended for detection of V-ATPase A1 in additional species, including equine, canine and bovine.

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: SK-N-MC cell lysate: sc-2237.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Finis, K., et al. 2006. Analysis of pigmented villonodular synovitis with genome-wide complementary DNA microarray and tissue array technology reveals insight into potential novel therapeutic approaches. Arthritis Rheum. 54: 1009-1019.
2. Lee, J.S., et al. 2010. Involvement of cholesterol in synaptic vesicle swelling. Exp. Biol. Med. 235: 470-477.

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.