SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase A1 (H-140): sc-28801

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 Rab 7 on vacuolar membranes, is essential for vacuole formation by selective swelling of late endosomes.

CHROMOSOMAL LOCATION

Genetic locus: ATP6V0A1 (human) mapping to 17q21.2, ATP6V0A4 (human) mapping to 7q34; Atp6v0a1 (mouse) mapping to 11 D, Atp6v0a4 (mouse) mapping to 6 B1.

SOURCE

V-ATPase A1 (H-140) is a rabbit polyclonal antibody raised against amino acids 71-210 mapping within an extracellular domain 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.

STORAGE

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

APPLICATIONS

V-ATPase A1 (H-140) is recommended for detection of V-ATPase A1 and, to a lesser extent, V-ATPase A4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 (H-140) is also recommended for detection of V-ATPase A1 and, to a lesser extent, V-ATPase A4 in additional species, including equine, canine, bovine, porcine and avian.

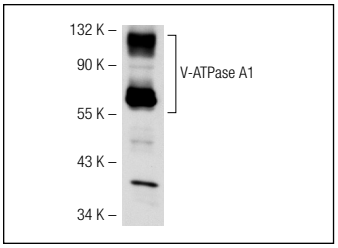
Molecular Weight of V-ATPase A1: 116 kDa.

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

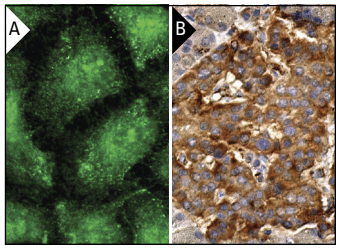
RESEARCH USE

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

DATA



V-ATPase A1 (H-140): sc-28801. Western blot analysis of V-ATPase A1 expression in SK-N-MC whole cell lysate.



V-ATPase A1 (H-140): sc-28801. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear, cytoplasmic and membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans (**B**).

SELECT PRODUCT CITATIONS

1. Peri, F., et al. 2008. Live imaging of neuronal degradation by microglia reveals a role for v0-ATPase a1 in phagosomal fusion *in vivo*. Cell 133: 916-927.
2. Nylandsted, J., et al. 2011. ErbB2-associated changes in the lysosomal proteome. Proteomics 11: 2830-2838.
3. Uhernik, A.L., et al. 2011. Control of MCT1 function in cerebrovascular endothelial cells by intracellular pH. Brain Res. 1376: 10-22.
4. Wei, Z., et al. 2011. A common genetic variant in the 3'-UTR of vacuolar H^+-ATPase ATP6V0A1 creates a micro-RNA motif to alter chromogranin A processing and hypertension risk. Circ. Cardiovasc. Genet. 4: 381-389.
5. Izumi, Y., et al. 2011. Aldosterone requires vasopressin V1a receptors on intercalated cells to mediate acid-base homeostasis. J. Am. Soc. Nephrol. 22: 673-680.
7. Becker, K., et al. 2012. A retroelement modifies pre-mRNA splicing: the murine Glrb(spa) allele is a splicing signal polymorphism amplified by long interspersed nuclear element insertion. J. Biol. Chem. 287: 31185-31194.
8. Correia S., et al. 2013. Sperm parameters and epididymis function in transgenic rats overexpressing the Ca^{2+}-binding protein regucalcin: a hidden role for Ca^{2+} in sperm maturation? Mol. Hum. Reprod. 19: 581-589.

PROTOCOLS

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