SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase α1 (I-14): sc-69089

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Vacuolar-type H^+-ATPase (V-ATPase) is a multisubunit enzyme responsible for acidification of eukaryotic intracellular organelles. V-ATPases pump protons against an electrochemical gradient, while F-ATPases reverse the process, thereby synthesizing ATP. The V-ATPase is comprised of a peripheral V1 domain, which is responsible for ATP hydrolysis, and an integral V0 domain, which is responsible for proton translocation. Nine subunits (A–H) make up the V1 domain and five subunits (a, d, c, c' and c'') make up the V0 domain. Like F-ATPase, V-ATPase most likely operates through a rotary mechanism, coupling ATP hydrolysis by the V1 domain to proton translocation by the V0 domain. V-ATPase α1, also known as HO68, VA68, VPP2, Vma1 or ATP6V1A1, functions as the A subunit of the V1 domain. It is a 617 amino acid, ubiquitously expressed protein.

REFERENCES

1. van Hille, B., Richener, H., Evans, D.B., Green, J.R. and Bilbe, G. 1993. Identification of two subunit A isoforms of the vacuolar H^+-ATPase in human osteoclastoma. J. Biol. Chem. 268: 7075-7080.
2. Nishi, T. and Forgac, M. 2002. The vacuolar H^+-ATPases—nature's most versatile proton pumps. Nat. Rev. Mol. Cell Biol. 3: 94-103.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607027. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Morel, N. 2003. Neurotransmitter release: the dark side of the vacuolar-H^+-ATPase. Biol. Cell 95: 453-457.
5. Kawasaki-Nishi, S., Nishi, T. and Forgac, M. 2003. Proton translocation driven by ATP hydrolysis in V-ATPases. FEBS Lett. 545: 76-85.
6. Sautin, Y.Y., Lu, M., Gaugler, A., Zhang, L. and Gluck, S.L. 2005. Phosphatidylinositol 3-kinase-mediated effects of glucose on vacuolar H^+-ATPase assembly, translocation, and acidification of intracellular compartments in renal epithelial cells. Mol. Cell. Biol. 25: 575-589.
7. Pietrement, C., Sun-Wada, G.H., Silva, N.D., McKee, M., Marshansky, V., Brown, D., Futai, M. and Breton, S. 2005. Distinct expression patterns of different subunit isoforms of the V-ATPase in the rat epididymis. Biol. Reprod. 74: 185-194.
8. Horng, J.L., Lin, L.Y., Huang, C.J., Katoh, F., Kaneko, T. and Hwang, P.P. 2007. Knockdown of V-ATPase subunit A (atp6v1a) impairs acid secretion and ion balance in zebrafish (*Danio rerio*). Am. J. Physiol. Regul. Integr. Comp. Physiol. 292: 2068-2076.

CHROMOSOMAL LOCATION

Genetic locus: ATP6V1A (human) mapping to 3q13.2; Atp6v1a (mouse) mapping to 16 B4.

SOURCE

V-ATPase α1 (I-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of V-ATPase α1 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-69089 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

V-ATPase α1 (I-14) is recommended for detection of V-ATPase α1 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 α1 (I-14) is also recommended for detection of V-ATPase α1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for V-ATPase α1 siRNA (h): sc-63199, V-ATPase α1 siRNA (m): sc-63200, V-ATPase α1 shRNA Plasmid (h): sc-63199-SH, V-ATPase α1 shRNA Plasmid (m): sc-63200-SH, V-ATPase α1 shRNA (h) Lentiviral Particles: sc-63199-V and V-ATPase α1 shRNA (m) Lentiviral Particles: sc-63200-V.

Molecular Weight of V-ATPase α1: 68 kDa.

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.

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.

PROTOCOLS

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