SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase B1/2 (D-4): sc-271832

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. A peripheral V_1 domain, which is responsible for ATP hydrolysis, and an integral V_0 domain, which is responsible for proton translocation, compose V-ATPase. Nine subunits (A-H) make up the V_1 domain and five subunits (a, d, c, c' and c") make up the V_0 domain. Like F-ATPase, V-ATPase most likely operates through a rotary mechanism. The V-ATPase V_1 B subunit exists as two isoforms. In the inner ear, the V-ATPase B1 isoform functions in proton secretion and is required to maintain proper endolymph pH and normal auditory function. The gene encoding the human V-ATPase B1 isoform maps to chromosome 2p13.3. Mutations in this gene cause distal renal tubular acidosis associated with sensorineural deafness. The V-ATPase B2 isoform is expressed in kidney and is the only B isoform expressed in osteoclasts. The gene encoding the human V-ATPase B2 isoform maps to chromosome 8p21.3.

CHROMOSOMAL LOCATION

Genetic locus: ATP6V1B1 (human) mapping to 2p13.3, ATP6V1B2 (human) mapping to 8p21.3; Atp6v1b1 (mouse) mapping to 6 C3, Atp6v1b2 (mouse) mapping to 8 B3.3.

SOURCE

V-ATPase B1/2 (D-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 103-131 near the N-terminus of V-ATPase B1/2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

V-ATPase B1/2 (D-4) is available conjugated to agarose (sc-271832 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271832 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271832 PE), fluorescein (sc-271832 FITC), Alexa Fluor® 488 (sc-271832 AF488), Alexa Fluor® 546 (sc-271832 AF546), Alexa Fluor® 594 (sc-271832 AF594) or Alexa Fluor® 647 (sc-271832 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271832 AF680) or Alexa Fluor® 790 (sc-271832 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271832 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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.

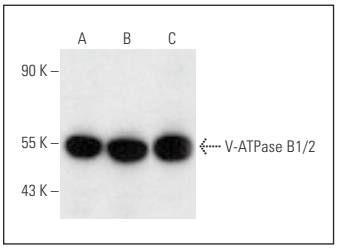
APPLICATIONS

V-ATPase B1/2 (D-4) is recommended for detection of V-ATPase B1 and V-ATPase B2 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).

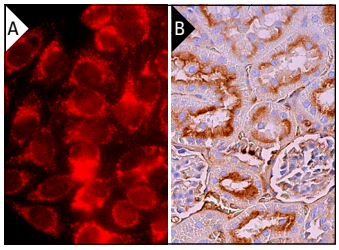
Molecular Weight of V-ATPase B1/2: 56 kDa.

Positive Controls: HEK293 whole cell lysate: sc-45136, SK-N-SH cell lysate: sc-2410 or MDBK cell lysate: sc-24736.

DATA



V-ATPase B1/2 (D-4): sc-271832. Western blot analysis of V-ATPase B1/2 expression in HEK293 (**A**) and SK-N-SH (**B**), MDBK (**C**) whole cell lysates.



V-ATPase B1/2 (D-4): sc-271832. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded rat kidney tissue showing apical membrane staining of cells in tubules (**B**).

SELECT PRODUCT CITATIONS

1. Bao, Z., et al. 2016. A potential target gene for the host-directed therapy of mycobacterial infection in murine macrophages. Int. J. Mol. Med. 38: 823-833.
3. Liu, C.C., et al. 2017. Rab5 and Rab11 are required for clathrin-dependent endocytosis of Japanese encephalitis virus in BHK-21 cells. J. Virol. 91: e01113-17.
4. Baloch, A.S., et al. 2019. Avian flavivirus enters BHK-21 cells by a low pH-dependent endosomal pathway. Viruses 11: 1112.
5. Rivera, O.C., et al. 2020. A common genetic variant in ZnT2 (Thr288Ser) is present in women with low milk volume and alters lysosome function and cell energetics. Am. J. Physiol., Cell Physiol. 318: C1166-C1177.
6. Yao, Z., et al. 2021. A marine teleost, Opsanus β, compensates acidosis in hypersaline water by H^+ excretion or reduced HCO_3^- excretion rather than HCO_3^- uptake. J. Comp. Physiol. B 191: 85-98.
6. Yu, L., et al. 2025. Manganese is a potent inducer of lysosomal activity that inhibits de novo HBV infection. PLoS Pathog. 21: e1012800.

PROTOCOLS

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