SANTA CRUZ BIOTECHNOLOGY, INC.

# V-ATPase B1/2 (E-20): sc-21209

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 2q13.3. 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.

## REFERENCES


1. Bernasconi, P., et al. 1990. An mRNA from human brain encodes an isoform of the B subunit of the vacuolar $H^+$-ATPase. J. Biol. Chem. 265: 17428-17431.
2. Ozcelik, T., et al. 1991. Chromosomal assignments of genes for vacuolar (endomembrane) proton pump subunits VPP1/Vpp-1 (116 kDa) and VPP3/Vpp-3 (58 kDa) in human and mouse. Cytogenet. Cell Genet. 58: 2008-2009.
3. Nelson, R.D., et al. 1992. Selectively amplified expression of an isoform of the vacuolar $H^+$-ATPase 56-kilodalton subunit in renal intercalated cells. Proc. Natl. Acad. Sci. USA 89: 3541-3545.
4. Lee, B.S., et al. 1996. Osteoclasts express the B2 isoform of vacuolar $H^+$-ATPase intracellularly and on their plasma membranes. Am. J. Physiol. 270: 382-388.
5. Karet, F.E., et al. 1999. Mutations in the gene encoding B1 subunit of $H^+$-ATPase cause renal tubular acidosis with sensorineural deafness. Nat. Genet. 21: 84-90.


## CHROMOSOMAL LOCATION

Genetic locus: ATP6V1B1 (human) mapping to 2q13.3, ATP6V1B2 (human) mapping to 8p21.3; Atp6v1b1 (mouse) mapping to 6 C3, Atp6v1b2 (mouse) mapping to 8 B3.3.

## SOURCE

V-ATPase B1/2 (E-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of V-ATPase B1/2 of human origin.

## STORAGE

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

## 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-21209 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

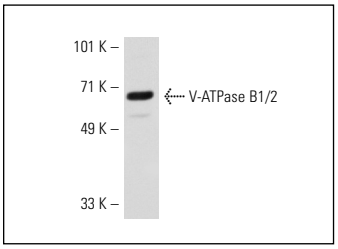
V-ATPase B1/2 (E-20) is recommended for detection of V-ATPase B1 and V-ATPase B2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

V-ATPase B1/2 (E-20) is also recommended for detection of V-ATPase B1 and V-ATPase B2 in additional species, including equine, canine, bovine, porcine and avian.

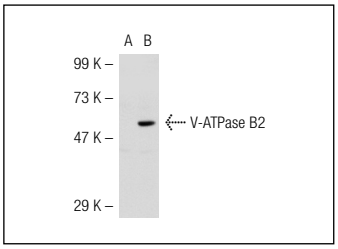
Molecular Weight of V-ATPase B1/2: 56 kDa.

Positive Controls: JAR cell lysate: sc-2276, rat brain extract: sc-2392 or V-ATPase B2 (m): 293T Lysate: sc-124515.

## DATA




V-ATPase B1/2 (E-20): sc-21209. Western blot analysis of V-ATPase B1/2 expression in rat brain tissue extract.




V-ATPase B1/2 (E-20): sc-21209. Western blot analysis of V-ATPase B2 expression in non-transfected: sc-117752 (**A**) and mouse V-ATPase B2 transfected: sc-124515 (**B**) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS


1. Kim, J., et al. 2009. Role of cytosolic $NADP^+$-dependent isocitrate dehydrogenase in ischemia-reperfusion injury in mouse kidney. Am. J. Physiol. Renal Physiol. 296: F622-F633.


## 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.