SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase G1 (D-5): sc-25333

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 a 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. In yeast, the V-ATPase G subunit is a soluble subunit that shares homology with the F-ATPase G subunit and may be part of a connection stalk between V_1 and V_0. The G_2 isoform of the G subunit associates with the pore-forming A1c-subunit of L-type calcium channel and aids in proper membrane targeting of the calcium channel. The genes encoding the G_1 and G_2 V-ATPase subunits map to chromosomes 9q32 and 6p21.3, respectively.

CHROMOSOMAL LOCATION

Genetic locus: ATP6V1G1 (human) mapping to 9q32; Atp6v1g1 (mouse) mapping to 4 C1.

SOURCE

V-ATPase G1 (D-5) is a mouse monoclonal antibody raised against amino acids 39-118 of V-ATPase G1 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 G1 (D-5) is available conjugated to agarose (sc-25333 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-25333 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-25333 PE), fluorescein (sc-25333 FITC), Alexa Fluor® 488 (sc-25333 AF488), Alexa Fluor® 546 (sc-25333 AF546), Alexa Fluor® 594 (sc-25333 AF594) or Alexa Fluor® 647 (sc-25333 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-25333 AF680) or Alexa Fluor® 790 (sc-25333 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

V-ATPase G1 (D-5) is recommended for detection of V-ATPase G1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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).

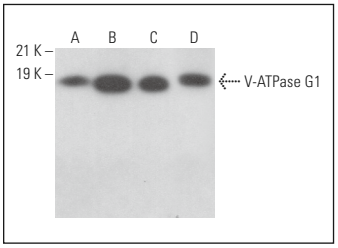
Suitable for use as control antibody for V-ATPase G1 siRNA (h): sc-36797, V-ATPase G1 siRNA (m): sc-36798, V-ATPase G1 shRNA Plasmid (h): sc-36797-SH, V-ATPase G1 shRNA Plasmid (m): sc-36798-SH, V-ATPase G1 shRNA (h) Lentiviral Particles: sc-36797-V and V-ATPase G1 shRNA (m) Lentiviral Particles: sc-36798-V.

Molecular Weight of V-ATPase G1: 13 kDa.

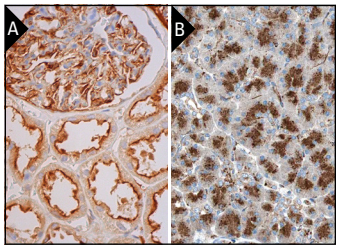
STORAGE

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

DATA



V-ATPase G1 (D-5): sc-25333. Western blot analysis of V-ATPase G1 expression in MIA PaCa-2 (**A**), NCI-H929 (**B**), U-87 MG (**C**) and PC-12 (**D**) whole cell lysates.



V-ATPase G1 (D-5): sc-25333. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing membrane and cytoplasmic staining of cells in glomeruli and apical membrane staining of cells in tubules (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of exocrine pancreas and islet cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (**B**).

SELECT PRODUCT CITATIONS

1. De Luca, M., et al. 2014. RILP regulates vacuolar ATPase through interaction with the V1G1 subunit. J. Cell Sci. 127: 2697-2708.
2. De Luca, M., et al. 2015. Advances in use of capsule-based fluorescent sensors for measuring acidification of endocytic compartments in cells with altered expression of V-ATPase subunit V1G1. ACS Appl. Mater. Interfaces 7: 15052-15060.
3. Kang, H.T., et al. 2017. Chemical screening identifies ATM as a target for alleviating senescence. Nat. Chem. Biol. 13: 616-623.
4. De Luca, M., et al. 2021. Role of the V1G1 subunit of V-ATPase in breast cancer cell migration. Sci. Rep. 11: 4615.
5. Kim, H.J., et al. 2021. RORα enhances lysosomal acidification and autophagic flux in the hepatocytes. Hepatol. Commun. 5: 2121-2138.
6. Wang, Y., et al. 2023. Cancer CD39 drives metabolic adaption and mal-differentiation of $CD4^+$ T cells in patients with non-small-cell lung cancer. Cell Death Dis. 14: 804.
7. Giambra, M., et al. 2024. Vacuolar proton-translocating ATPase may take part in the drug resistance phenotype of glioma stem cells. Int. J. Mol. Sci. 25: 2743.
8. Romano, R., et al. 2025. The type III intermediate filament protein peripherin regulates lysosomal degradation activity and autophagy. Int. J. Mol. Sci. 26: 549.

RESEARCH USE

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