SANTA CRUZ BIOTECHNOLOGY, INC.

V-ATPase α1 (4F5): sc-293336

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 V_1 domain, which is responsible for ATP hydrolysis, and an integral V_0 domain, which is responsible for proton translocation. 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, coupling ATP hydrolysis by the V_1 domain to proton translocation by the V_0 domain. V-ATPase α1, also known as HO68, VA68, VPP2, Vma1 or ATP6V1A1, functions as the A subunit of the V_1 domain. It is a 617 amino acid, ubiquitously expressed protein.

REFERENCES

1. van Hille, B., et al. 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.

CHROMOSOMAL LOCATION

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

SOURCE

V-ATPase α1 (4F5) is a mouse monoclonal antibody raised against amino acids 508-617 of V-ATPase α1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

V-ATPase α1 (4F5) 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), 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

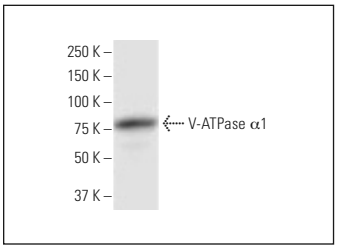
Molecular Weight of V-ATPase α1: 68 kDa.

Positive Controls: human kidney extract: sc-363764.

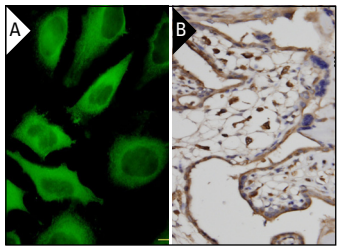
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



V-ATPase α1 (4F5): sc-293336. Western blot analysis of V-ATPase α1 expression in human kidney tissue extract.



V-ATPase α1 (4F5): sc-293336. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic and membrane staining (**B**).

SELECT PRODUCT CITATIONS

1. Roy, M., et al. 2021. RabGAP TBC1D25 is involved in human osteoclast activity. Eur. J. Cell Biol. 100: 151145.
2. Tang, Q., et al. 2021. NDST3 deacetylates α-Tubulin and suppresses V-ATPase assembly and lysosomal acidification. EMBO J. 40: e107204.
3. Guo, X., et al. 2022. Structure and mechanism of human cystine exporter cystinosin. Cell 185: 3739-3752.e18.

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 for detailed protocols and support products.