SANTA CRUZ BIOTECHNOLOGY, INC.

SPCA1/2 (B-3): sc-377339

BACKGROUND

The family of P-type Ca^{2+}-transport ATPases is made up of three subfamilies: sarco(endo)plasmic-reticulum Ca^{2+} ATPases (SERCA), plasma- membrane Ca^{2+} ATPases (PMCA), and secretory-pathway Ca^{2+} ATPases (SPCA). The SPCA1 protein (encoded for by the ATP2C1 gene) is a Ca^{2+}/ Mn^{2+}-transport ATPase. It localizes to the Golgi apparatus and, together with SERCA2, is responsible for the ionic milieu in the Golgi lumen. Defects in the gene that encodes SPCA1 are the cause of Hailey-Hailey disease, an autosomal dominant disorder characterized by persistent blisters and acantholysis of the epidermis. SPCA2 (encoded by the ATP2C2 gene) also localizes to the Golgi apparatus and has a higher enzymatic turnover rate than that of SPCA1 while having a high affinity for cytosolic Ca^{2+}. The enzymatic properties of the human SPCA2 enzyme and the restriction of its tissue expression to the gastrointestinal and respiratory tracts, prostate, thyroid, salivary, and mammary glands may, in principle, define a Ca^{2+}-ATPase pump with a specific physiological role in secretory cells.

REFERENCES

1. Sudbrak, R., et al. 2000. Hailey-Hailey disease is caused by mutations in ATP2C1 encoding a novel Ca^{2+} pump. Hum. Mol. Genet. 9: 1131-1140.
2. Hu, Z., et al. 2000. Mutations in ATP2C1, encoding a calcium pump, cause Hailey-Hailey disease. Nat. Genet. 24: 61-65.
3. Stanchi, F., et al. 2001. Characterization of 16 novel human genes showing high similarity to yeast sequences. Yeast 18: 69-80.
4. Yokota, K., et al. 2002. Analysis of ATP2C1 gene mutation in 10 unrelated Japanese families with Hailey-Hailey disease. J. Invest. Dermatol. 118: 550-551.
5. Fairclough, R.J., et al. 2003. Effect of Hailey-Hailey disease mutations on the function of a new variant of human secretory pathway Ca^{2+}/Mn^{2+}-ATPase (hSPCA1). J. Biol. Chem. 278: 24721-24730.

CHROMOSOMAL LOCATION

Genetic locus: ATP2C1 (human) mapping to 3q22.1, ATP2C2 (human) mapping to 16q24.1.

SOURCE

SPCA1/2 (B-3) is a mouse monoclonal antibody raised against amino acids 711-820 mapping near the C-terminus of SPCA2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SPCA1/2 (B-3) is available conjugated to agarose (sc-377339 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-377339 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377339 PE), fluorescein (sc-377339 FITC), Alexa Fluor® 488 (sc-377339 AF488), Alexa Fluor® 546 (sc-377339 AF546), Alexa Fluor® 594 (sc-377339 AF594) or Alexa Fluor® 647 (sc-377339 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377339 AF680) or Alexa Fluor® 790 (sc-377339 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SPCA1/2 (B-3) is recommended for detection of SPCA1 and SPCA2 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of SPCA1: 101 kDa.

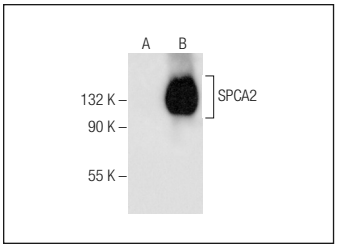
Molecular Weight of SPCA2: 103 kDa.

Positive Controls: SPCA2 (h): 293T Lysate: sc-172997.

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.

DATA



SPCA1/2 (B-3): sc-377339. Western blot analysis of SPCA2 expression in non-transfected: sc-117752 (**A**) and human SPCA2 transfected: sc-172997 (**B**) 293T whole cell lysates.

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.