SANTA CRUZ BIOTECHNOLOGY, INC.

Sar1a (K-44): sc-130463

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

There are a number of components involved in the secretory pathway of cells. Vesicular traffic within the early secretory pathway is mediated by COPI- and COPII-coated vesicles. The COPII vesicle coat protein promotes the formation of endoplasmic reticulum (ER) derived transport vesicles that carry secretory proteins to the Golgi complex. The Sar1 gene encodes two isoforms, Sar1a and Sar1b, in mammalian cells. These proteins are low molecular weight GTPases, which are essential for the formation of transport vesicles from the ER. Mutations in the Sar1 gene result in Anderson's disease (and/or chylomicron retention disease CMRD), a rare, autosomal recessive lipid malabsorption disorder characterized by chronic diarrhea, failure to thrive and hypocholesterolemia in childhood.

REFERENCES

1. Kuge, O., et al. 1994. Sar1 promotes vesicle budding from the endoplasmic reticulum but not Golgi compartments. J. Cell Biol. 125: 51-65.
2. Vahlensieck, Y., et al. 1995. Transcriptional studies on yeast Sec genes provide no evidence for regulation at the transcriptional level. Yeast 11: 901-911.
3. Salama, N.R., et al. 1997. Sec31 encodes an essential component of the COPII coat required for transport vesicle budding from the endoplasmic reticulum. Mol. Biol. Cell 8: 205-217.
4. Nickel, W., et al. 1998. Protein and lipid sorting between the endoplasmic reticulum and the Golgi complex. Semin. Cell Dev. Biol. 9: 493-501.
5. Saito, Y., et al. 1999. Identification of Sec12, Sed4, truncated Sec16, and EKS1/HRD3 as multicopy suppressors of TS mutants of Sar1 GTPase. J. Biochem. 125: 130-137.
6. Shoulders, C.C., et al. 2004. The intracellular transport of chylomicrons requires the small GTPase, Sar1b. Curr. Opin. Lipidol. 15: 191-197.
7. Wang, X.M., et al. 2006. Sequence identification, tissue distribution, mapping and polymorphism of the porcine sar1b gene. Anim. Biotechnol. 17: 99-107.
8. Silvain, M., et al. 2008. Anderson's disease (chylomicron retention disease): a new mutation in the SARA2 gene associated with muscular and cardiac abnormalities. Clin. Genet. 74: 546-552.

CHROMOSOMAL LOCATION

Genetic locus: SAR1A (human) mapping to 10q22.1; Sar1a (mouse) mapping to 10 B4.

SOURCE

Sar1a (K-44) is a mouse monoclonal antibody raised against recombinant Sar1a of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Sar1a (K-44) is recommended for detection of Sar1a of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Sar1a siRNA (h): sc-76452, Sar1a siRNA (m): sc-76453, Sar1a shRNA Plasmid (h): sc-76452-SH, Sar1a shRNA Plasmid (m): sc-76453-SH, Sar1a shRNA (h) Lentiviral Particles: sc-76452-V and Sar1a shRNA (m) Lentiviral Particles: sc-76453-V.

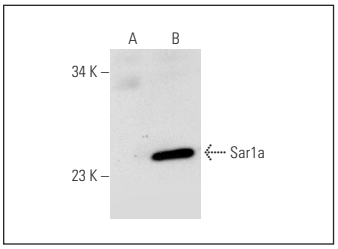
Molecular Weight of Sar1a: 22 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or Sar1a (m): 293T Lysate: sc-123353.

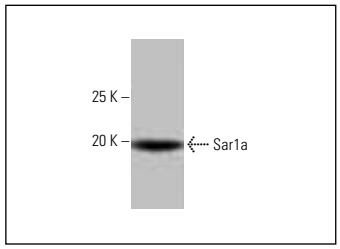
RECOMMENDED SUPPORT REAGENTS

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).

DATA



Sar1a (K-44): sc-130463. Western blot analysis of Sar1a expression in non-transfected: sc-117752 (**A**) and mouse Sar1a transfected: sc-123353 (**B**) 293T whole cell lysates.



Sar1a (K-44): sc-130463. Western blot analysis of Sar1a expression in Jurkat whole cell lysate.

SELECT PRODUCT CITATIONS

1. Yehia, L., et al. 2015. Germline heterozygous variants in SEC23B are associated with Cowden syndrome and enriched in apparently sporadic thyroid cancer. Am. J. Hum. Genet. 97: 661-676.
2. Wood, R.K., et al. 2022. Secretory defects in pediatric osteosarcoma result from downregulation of selective COPII coatomer proteins. iScience 25: 104100.

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.