SANTA CRUZ BIOTECHNOLOGY, INC.

SPA-1 (B-7): sc-166219

BACKGROUND

The SPA-1 (signal-induced proliferation-associated gene-1) protein is a principal Rap 1 GTPase-activating protein in the hematopoietic progenitors and peripheral T cells. The SPA-1 gene is normally expressed in fetal and adult lymphohematopoietic tissues. Various types of mitogenic stimulation increase SPA-1 mRNA expression in normal lymphocytes. SPA-1 disrupts LFA-1-ICAM1-mediated adhesive interactions and subsequent T cell-receptor triggering and IL-2 production, possibly through inhibition of Rap 1. Mice that are deficient for the SPA-1 gene develop age-dependent progression of T cell immunodeficiency followed by a spectrum of late onset myeloproliferative disorders, mimicking human chronic myeloid leukemia. SPA-1 also directly binds to AQP2 and plays a role in regulating AQP2 trafficking to the apical membrane.

REFERENCES

1. Hattori, M., et al. 1995. Molecular cloning of a novel mitogen-inducible nuclear protein with a Ran GTPase-activating domain that affects cell cycle progression. Mol. Cell. Biol. 15: 552-560.
2. Katagiri, K., et al. 2002. Rap 1 functions as a key regulator of T cell and antigen-presenting cell interactions and modulates T cell responses. Mol. Cell. Biol. 22: 1001-1015.
3. Ishida, D., et al. 2003. Antigen-driven T cell anergy and defective memory T cell response via deregulated Rap 1 activation in SPA-1-deficient mice. Proc. Natl. Acad. Sci. USA 100: 10919-10924.
4. Harazaki, M., et al. 2004. Specific recruitment of SPA-1 to the immunological synapse: involvement of actin-bundling protein actinin. Immunol. Lett. 92: 221-226.
5. Noda, Y., et al. 2004. Aquaporin-2 trafficking is regulated by PDZ-domain containing protein SPA-1. FEBS Lett. 568: 139-145.
6. Kometani, K., et al. 2004. Rap 1 and SPA-1 in hematologic malignancy. Trends Mol. Med. 10: 401-408.
7. Noda, Y. and Sasaki, S. 2004. Molecular mechanisms and drug development in aquaporin water channel diseases: molecular mechanism of water channel aquaporin-2 trafficking. J. Pharmacol. Sci. 96: 249-254.
8. Noda, Y. and Sasaki, S. 2005. Trafficking mechanism of water channel aquaporin-2. Biol. Cell 97: 885-892.

CHROMOSOMAL LOCATION

Genetic locus: SIPA1 (human) mapping to 11q13.1; Sipa1 (mouse) mapping to 19 A.

SOURCE

SPA-1 (B-7) is a mouse monoclonal antibody raised against amino acids 691-990 mapping near the C-terminus of SPA-1 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SPA-1 (B-7) is recommended for detection of SPA-1 of mouse, rat and 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).

Suitable for use as control antibody for SPA-1 siRNA (h): sc-45418, SPA-1 siRNA (m): sc-45419, SPA-1 shRNA Plasmid (h): sc-45418-SH, SPA-1 shRNA Plasmid (m): sc-45419-SH, SPA-1 shRNA (h) Lentiviral Particles: sc-45418-V and SPA-1 shRNA (m) Lentiviral Particles: sc-45419-V.

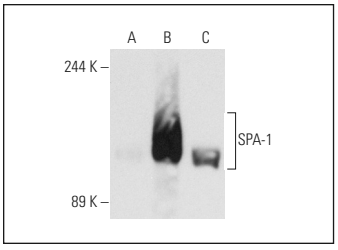
Molecular Weight of SPA-1: 130 kDa.

Positive Controls: CCRF-CEM nuclear extract: sc-2146, Ramos cell lysate: sc-2216 or SPA-1 (h): 293T Lysate: sc-111824.

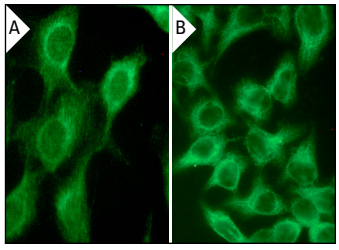
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



SPA-1 (B-7): sc-166219. Western blot analysis of SPA-1 expression in non-transfected: sc-117752 (**A**) and human SPA-1 transfected: sc-111824 (**B**) 293T whole cell lysates and CCRF-CEM nuclear extract (**C**).



SPA-1 (B-7): sc-166219. Immunofluorescence staining of methanol-fixed NIH/3T3 cells (**A**) and HeLa cells (**B**) showing cytoplasmic and perinuclear localization.

SELECT PRODUCT CITATIONS

1. Mathieu, V., et al. 2012. Aggressiveness of human melanoma xenograft models is promoted by aneuploidy-driven gene expression deregulation. Oncotarget 3: 399-413.

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.