

SPA-1 (3): sc-136189

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

- Hattori, M., Tsukamoto, N., Nur-e-Kamal, M.S., Rubinfeld, B., Iwai, K., Kubota, H., Maruta, H. and Minato, N. 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.
- Katagiri, K., Hattori, M., Minato, N. and Kinashi, T. 2002. RAP1 functions as a key regulator of T cell and antigen-presenting cell interactions and modulates T cell responses. *Mol. Cell. Biol.* 22: 1001-1015.
- Ishida, D., Yang, H., Masuda, K., Uesugi, K., Kawamoto, H., Hattori, M. and Minato, N. 2003. Antigen-driven T cell anergy and defective memory T cell response via deregulated RAP1 activation in SPA-1-deficient mice. *Proc. Natl. Acad. Sci. USA* 100: 10919-10924.
- Harazaki, M., Kawai, Y., Su, L., Hamazaki, Y., Nakahata, T., Minato, N. and Hattori, M. 2004. Specific recruitment of SPA-1 to the immunological synapse: involvement of actin-bundling protein actinin. *Immunol. Lett.* 92: 221-226.
- Noda, Y., Horikawa, S., Furukawa, T., Hirai, K., Katayama, Y., Asai, T., Kuwahara, M., Katagiri, K., Kinashi, T., Hattori, M., Minato, N. and Sasaki, S. 2004. Aquaporin-2 trafficking is regulated by PDZ-domain containing protein SPA-1. *FEBS Lett.* 568: 139-145.

CHROMOSOMAL LOCATION

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

SOURCE

SPA-1 (3) is a mouse monoclonal antibody raised against amino acids 911-1027 of SPA-1 of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

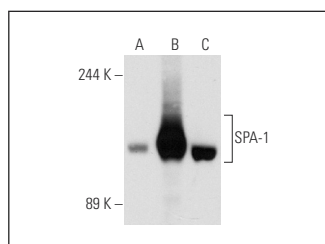
SPA-1 (3) is recommended for detection of SPA-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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.

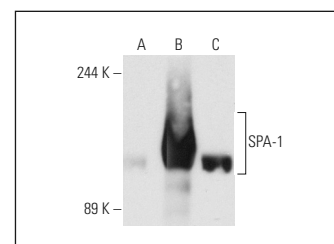
Molecular Weight of SPA-1: 130 kDa.

Positive Controls: SPA-1 (h): 293T Lysate: sc-111824, CCRF-CEM cell lysate: sc-2225 or SPA-1 (m): 293T Lysate: sc-123727.

DATA



SPA-1 (3): sc-136189. Western blot analysis of SPA-1 expression in non-transfected 293T: sc-117752 (A), mouse SPA-1 transfected 293T: sc-123727 (B) and CCRF-CEM (C) whole cell lysates.



SPA-1 (3): sc-136189. 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).

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.