

# SPA-1 (M-300): sc-67095

## BACKGROUND

The SPA-1 (signal-induced proliferation-associated gene-1) protein is a principal RAP1 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 RAP1. 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 (M-300) is a rabbit polyclonal antibody raised against amino acids 691-990 mapping near the C-terminus of SPA-1 of mouse origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 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 (M-300) is recommended for detection of SPA-1 of mouse, rat and, to a lesser extent, 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) 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.

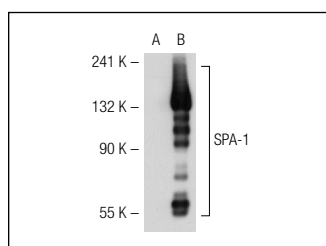
Molecular Weight of SPA-1: 130 kDa.

Positive Controls: mouse spleen extract: sc-2391 or rat spleen extract: sc-2397.

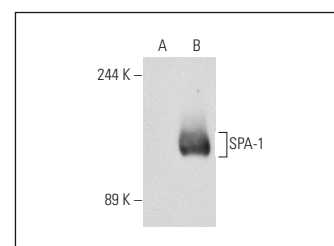
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



SPA-1 (M-300): sc-67095. 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.



SPA-1 (M-300): sc-67095. 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.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

**MONOS**  
Satisfaction  
Guaranteed

Try **SPA-1 (B-7): sc-166219** or **SPA-1 (B-2): sc-166914**, our highly recommended monoclonal alternatives to SPA-1 (M-300).