SANTA CRUZ BIOTECHNOLOGY, INC.

SARA (F-9): sc-133071

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

SARA (NSP, SARA, MADHIP, SMADIP, ZFYVE9, zinc finger FYVE domain containing 9) is a double zinc finger (FYVE domain) protein that influences the recruitment of Smad proteins to the TGF-β receptor and ensures appropriate subcellular localization of the activated receptor-bound complex. The FYVE domain in SARA directs localization to early endosomal compartments where it can interact with TGF-β receptors and Smads. Promyelocytic leukemia (PML) tumour suppressor physically interacts with Smad2/3 and SARA and promotes association and accumulation of SARA and TGF-β receptor in early endosome. SARA can enhance recruitment of protein phosphatase 1 catalytic subunit (PP1c) to Smad7-GADD34 complex by controlling the specific subcellular localization of PP1c. Dephosphorylation of TGF-β receptor by Smad7 is an effective mechanism for governing negative feedback in TGF-β signaling.

REFERENCES

1. Nakao, A., et al. 1997. TGFβ receptor-mediated signalling through Smad2, Smad3 and Smad4. EMBO J. 16: 5353-5362.
2. Heldin, C.H., et al. 1997. TGFβ signalling from cell membrane to nucleus through SMAD proteins. Nature 390: 465-471.
3. Derynck, R., et al. 1998. Smads: transcriptional activators of TGFβ responses. Cell 95: 737-740.
4. Tsukazaki, T., et al. 1998. SARA, a FYVE domain protein that recruits Smad2 to the TGFβ receptor. Cell 95: 779-791.
5. ten Dijke, P. and Heldin, C.H. 1999. Signal transduction. An anchor for activation. Nature 397: 109-111.
6. Kutateladze, T.G., et al. 1999. Phosphatidylinositol 3-phosphate recognition by the FYVE domain. Mol. Cell 3: 805-811.
7. Wurmser, A.E., et al. 1999. Phosphoinositide 3-kinases and their FYVE domain-containing effectors as regulators of vacuolar/lysosomal membrane trafficking pathways. J. Biol. Chem. 274: 9129-9132.
8. Liu, C., et al. 2003. Smads 2 and 3 are differentially activated by transforming growth factor-β (TGF-β) in quiescent and activated hepatic stellate cells. Constitutive nuclear localization of Smads in activated cells is TGF-β-independent. J. Biol. Chem. 278: 11721-11728.

CHROMOSOMAL LOCATION

Genetic locus: ZFYVE9 (human) mapping to 1p32.3.

SOURCE

SARA (F-9) is a mouse monoclonal antibody raised against amino acids 1-300 of SARA of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

SARA (F-9) is recommended for detection of SARA 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).

Suitable for use as control antibody for SARA siRNA (h): sc-36458, SARA shRNA Plasmid (h): sc-36458-SH and SARA shRNA (h) Lentiviral Particles: sc-36458-V.

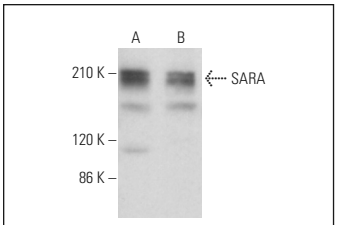
Molecular Weight of SARA: 180 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or CCRF-CEM cell lysate: sc-2225.

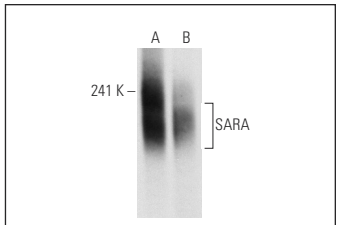
RECOMMENDED SUPPORT REAGENTS

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



SARA (F-9): sc-133071. Western blot analysis of SARA expression in HeLa (**A**) and CCRF-CEM (**B**) whole cell lysates.



SARA (F-9): sc-133071. Western blot analysis of SARA expression in HeLa (**A**) and Jurkat (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Aki, S., et al. 2015. Phosphatidylinositol 3-kinase class II α-isoform PI3K-C2α is required for transforming growth factor β-induced Smad signaling in endothelial cells. J. Biol. Chem. 290: 6086-6105.
2. Rozés-Salvador, V., et al. 2020. Fine-tuning the TGFβ signaling pathway by SARA during neuronal development. Front. Cell Dev. Biol. 8: 550267.

STORAGE

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