SANTA CRUZ BIOTECHNOLOGY, INC.

SH2D1A (1D12): sc-53859

BACKGROUND

SH2D1A, also designated SH2 domain protein 1A, SAP and CD150/SLAM (signaling lymphocyte activation molecule)-associated protein, influences signaling pathways involving SLAM molecules at the interface between T and B cells. SH2D1A modulates SLAM by blocking the recruitment of tyrosine phosphatase SHP2 to the phosphorylated cytoplasmic domain of SLAM. SLAM activation mediates expansion of activated T cells during immune responses, induces production of interferon-γ and changes the functional profile of subsets of T cells. SH2D1A is a hydrophilic, 128 amino acid protein that is 96% homologous to the mouse protein in both SH2 and tail domains. SH2D1A is present in all major subsets of T cells, including $CD4^+$, $CD45RO^+$, $CD45RA^+$ and $CD8^+$, but not in B cells. SH2D1A can interact via an SH2 domain with a motif (TIYXXV) present in the cytoplasmic tail of cell-surface receptors SLAM (CD150), CD84, CD229 (LY9) and CD244 (2B4).

REFERENCES

1. Sayos, J., et al. 1998. The X-linked lymphoproliferative disease gene product SAP regulates signals induced through the co-receptor SLAM. Nature 395: 462-469.
2. Nagy, N., et al. 2000. SH2D1A and SLAM protein expression in human lymphocytes and derived cell lines. Int. J. Cancer 88: 439-447.
3. Morra, M., et al. 2001. Characterization of SH2D1A missense mutations identified in X-linked lymphoproliferative disease patients. J. Biol. Chem. 276: 36809-36816.
4. Mikhalap, S.V., et al. 2004. The adaptor protein SH2D1A regulates signaling through CD150 (SLAM) in B cells. Blood 104: 4063-4070.
5. Hron, J.D., et al. 2004. SH2D1A regulates T-dependent humoral autoimmunity. J. Exp. Med. 200: 261-266.
6. Morra, M., et al. 2005. Defective B cell responses in the absence of SH2D1A. Proc. Natl. Acad. Sci. USA 102: 4819-4823.
7. Gao, N., et al. 2006. B cell induction of IL-13 expression in NK cells: role of CD244 and SLAM-associated protein. J. Immunol. 176: 2758-2764.
8. Bhat, R., et al. 2006. Fine-tuning of immune responses by SLAM-related receptors. J. Leukoc. Biol. 79: 417-424.

CHROMOSOMAL LOCATION

Genetic locus: SH2D1A (human) mapping to Xq25.

SOURCE

SH2D1A (1D12) is a rat monoclonal antibody raised against full length SH2D1A of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SH2D1A (1D12) is available conjugated to either phycoerythrin (sc-53859 PE) or fluorescein (sc-53859 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

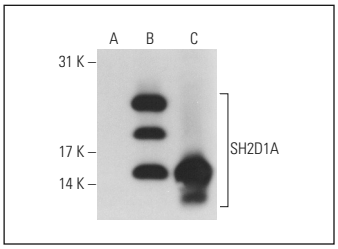
SH2D1A (1D12) is recommended for detection of SH2D1A of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for SH2D1A siRNA (h): sc-40819, SH2D1A shRNA Plasmid (h): sc-40819-SH and SH2D1A shRNA (h) Lentiviral Particles: sc-40819-V.

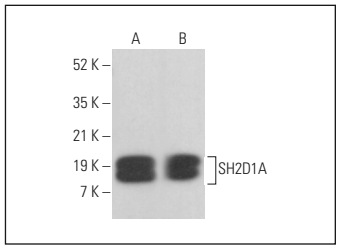
Molecular Weight of SH2D1A: 16 kDa.

Positive Controls: SH2D1A (h): 293T Lysate: sc-174562, SUP-T1 whole cell lysate: sc-364796 or Jurkat whole cell lysate: sc-2204.

DATA



SH2D1A (1D12): sc-53859. Western blot analysis of SH2D1A expression in non-transfected 293T: sc-117752 (**A**), human SH2D1A transfected 293T: sc-174562 (**B**) and Jurkat (**C**) whole cell lysates.



SH2D1A (1D12): sc-53859. Western blot analysis of SH2D1A expression in Jurkat (**A**) and SUP-T1 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Menard, L., et al. 2014. Signaling lymphocytic activation molecule (SLAM)/SLAM-associated protein pathway regulates human B-cell tolerance. J. Allergy Clin. Immunol. 133: 1149-1161.
2. Ezinne, C.C., et al. 2014. HTLV-1 specific $CD8^+$ T cell function augmented by blockade of 2B4/CD48 interaction in HTLV-1 infection. PLoS ONE 9: e87631.
3. Kwon, H.J., et al. 2016. Stepwise phosphorylation of p65 promotes NFκB activation and NK cell responses during target cell recognition. Nat. Commun. 7: 11686.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.