SANTA CRUZ BIOTECHNOLOGY, INC.

SH2D1A siRNA (m): sc-40820

BACKGROUND

SH2D1A, also 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 (mouse) mapping to X A4.

PRODUCT

SH2D1A siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SH2D1A shRNA Plasmid (m): sc-40820-SH and SH2D1A shRNA (m) Lentiviral Particles: sc-40820-Vas alternate gene silencing products.

For independent verification of SH2D1A (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-40820A, sc-40820B and sc-40820C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SH2D1A siRNA (m) is recommended for the inhibition of SH2D1A expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

SH2D1A (A-8): sc-398118 is recommended as a control antibody for monitoring of SH2D1A gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-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) Immunofluorescence: use m-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SH2D1A gene expression knockdown using RT-PCR Primer: SH2D1A (m)-PR: sc-40820-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° 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.