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SANTA CRUZ BIOTECHNOLOGY, INC.

LAIR-1 siRNA (m): sc-146638

BACKGROUND

Leukocyte-associated Ig-like receptor-1, known as LAIR-1, is a transmembrane glycoprotein that is constitutively expressed on the majority of human peripheral blood mononuclear leukocytes. LAIR-1 is phosphorylated at the Tyr-233 and Tyr-263 residues, and once activated, LAIR-1 recruits SHP-1, an SH2 domain-containing phosphatase. SHP-1 is highly expressed in hematopoietic cells and functions as a negative regulator of cell signaling. SHP-1 also contributes to the establishment of TCR signaling thresholds in both developing and mature T lymphocytes. The binding of LAIR-1 to SHP-1 functions as a mechanism of regulating the role of SHP-1 in cell signaling. Occupancy of LAIR-1 on human myelomonocytic leukemic cell lines inhibits proliferation and leads to programmed cell death (PCD), and cross-linking of the LAIR-1 antigen on natural killer (NK) cells results in strong inhibition of NK cell-mediated cytotoxity. Protein kinases responsible for tyrosine phosphorylation of LAIR-1 may belong to the Src family since PP1, a Src family kinase inhibitor, significantly inhibits its phosphorylation.

REFERENCES

1. Meyaard, L., et al. 1997. LAIR-1, a novel inhibitory receptor expressed on human mononuclear leukocytes. Immunity 7: 283-290.
2. Poggi, A., et al. 2000. Engagement of the leukocyte-associated Ig-like receptor-1 induces programmed cell death and prevents NFκB nuclear translocation in human myeloid leukemias. Eur. J. Immunol. 30: 2751-2758.
3. Xu, M., et al. 2000. Identification and characterization of leukocyte-associated Ig-like receptor-1 as a major anchor protein of tyrosine phosphatase SHP-1 in hematopoietic cells. J. Biol. Chem. 275: 17440-17446.
4. Fournier, N., et al. 2000. FDF03, a novel inhibitor receptor of the immunoglobulin superfamily, is expressed by human dendritic and myeloid cells. J. Immunol. 165: 1197-1209.
5. Sathish, J., et al. 2001. Constitutive association of SHP-1 with leukocyte-associated Ig-like receptor-1 in human T cells. J. Immunol. 166: 1763-1770.

CHROMOSOMAL LOCATION

Genetic locus: Lair1 (mouse) mapping to 7 A1.

PRODUCT

LAIR-1 siRNA (m) is a pool of 2 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 LAIR-1 shRNA Plasmid (m): sc-146638-SH and LAIR-1 shRNA (m) Lentiviral Particles: sc-146638-V as alternate gene silencing products.

For independent verification of LAIR-1 (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-146638A and sc-146638B.

PROTOCOLS

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

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

LAIR-1 siRNA (m) is recommended for the inhibition of LAIR-1 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

LAIR-1 (F-5): sc-398141 is recommended as a control antibody for monitoring of LAIR-1 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-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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor LAIR-1 gene expression knockdown using RT-PCR Primer: LAIR-1 (m)-PR: sc-146638-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.