

LAIR-1 (E-8): sc-393549

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 cytotoxicity. 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., Adema, G., Chang, C., Woollatt, E., Sutherland, G., Lanier, L. and Phillips, J. 1997. LAIR-1, a novel inhibitory receptor expressed on human mononuclear leukocytes. *Immunity* 7: 283-290.
2. Poggi, A., Pellegatta, F., Leone, B., Moretta, L. and Zocchi, M. 2000. Engagement of the leukocyte-associated Ig-like receptor-1 induces programmed cell death and prevents NF κ B nuclear translocation in human myeloid leukemias. *Eur. J. Immunol.* 30: 2751-2758.
3. Xu, M., Runxiang, Z. and Zhao, A. 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., Chalus, L., Durand, I., Garcia, E., Pin, J., Churakova, T., Patel, S., Zlot, C., Gorman, D., Zurawski, S., Abrams, J., Bates, E. and Garone, P. 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., Johnson, K., Fuller, K., LeRoy, F., Meyaard, L., Sims, M. and Matthews, R. 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.

SOURCE

LAIR-1 (E-8) is a mouse monoclonal antibody raised against amino acids 1-263 representing full length LAIR-1 of rat origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

LAIR-1 (E-8) is recommended for detection of LAIR-1 of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 LAIR-1 siRNA (m): sc-146638, LAIR-1 shRNA Plasmid (m): sc-146638-SH and LAIR-1 shRNA (m) Lentiviral Particles: sc-146638-V.

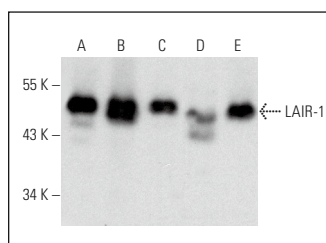
Molecular Weight of LAIR-1: 42 kDa.

Positive Controls: CTLL-2 cell lysate: sc-2242, RBL-1 whole cell lysate: sc-364790 or rat spleen extract: sc-2397.

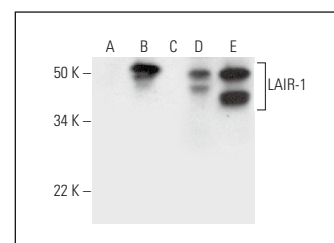
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



LAIR-1 (E-8): sc-393549. Western blot analysis of LAIR-1 expression in RAW 264.7 (A), WEHI-231 (B), LADMAC (C), RIN-m5F (D) and KNK1 (E) whole cell lysates.



LAIR-1 (E-8): sc-393549. Western blot analysis of LAIR-1 expression in HT-29 (A), CTLL-2 (B), HuT 78 (C) and RBL-1 (D) whole cell lysates and rat spleen tissue extract (E). Note lack of reactivity with human LAIR-1 in lanes A and C.

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.