SANTA CRUZ BIOTECHNOLOGY, INC.

LAT (11B.12): sc-53550

BACKGROUND

T cell receptors activate immune responses by recognizing antigen and initiating a cascade of intracellular signal transduction events, eventually culminating in cell proliferation and differentiation. Both protein tyrosine kinases and PLCγ are activated by this event. LAT, or linker for activation of T cells, is an integral membrane protein that has been shown to associate with PLCγ1, as well as GRB2 and the p85 subunit of PI 3-kinase. Binding of these signaling molecules to LAT is associated with phosphorylation of LAT by ZAP-70/Syk tyrosine kinases. LAT appears to play a role in activation of transcription mediated by AP-1 and NFAT following stimulation of the T cell receptor, suggesting that it acts as a linker protein in T cell activation. LAT protein is palmitoylated, and this modification is required for its tyrosine phosphorylation and localization to glycolipid-enriched microdomains.

CHROMOSOMAL LOCATION

Genetic locus: LAT (human) mapping to 16p11.2; Lat (mouse) mapping to 7 F3.

SOURCE

LAT (11B.12) is a mouse monoclonal antibody raised against amino acids 31-233 of LAT 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.

LAT (11B.12) is available conjugated to agarose (sc-53550 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53550 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53550 PE), fluorescein (sc-53550 FITC), Alexa Fluor® 488 (sc-53550 AF488), Alexa Fluor® 546 (sc-53550 AF546), Alexa Fluor® 594 (sc-53550 AF594) or Alexa Fluor® 647 (sc-53550 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53550 AF680) or Alexa Fluor® 790 (sc-53550 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

LAT (11B.12) is recommended for detection of LAT of mouse, rat and 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for LAT siRNA (h): sc-35795, LAT siRNA (m): sc-35796, LAT shRNA Plasmid (h): sc-35795-SH, LAT shRNA Plasmid (m): sc-35796-SH, LAT shRNA (h) Lentiviral Particles: sc-35795-V and LAT shRNA (m) Lentiviral Particles: sc-35796-V.

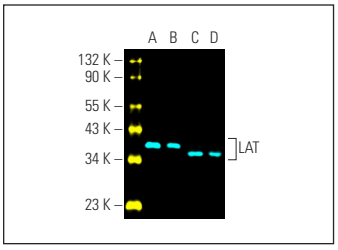
Molecular Weight of LAT: 36-38 kDa.

Positive Controls: WR19L cell lysate: sc-3805, BYDP whole cell lysate: sc-364368 or Jurkat whole cell lysate: sc-2204.

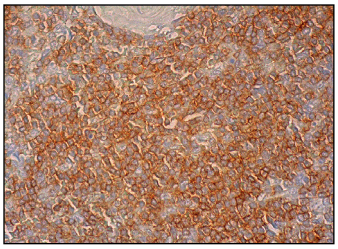
STORAGE

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

DATA



LAT (11B.12) Alexa Fluor® 647: sc-53550 AF647. Direct fluorescent western blot analysis of LAT expression in BYDP (**A**), WR19L (**B**), Jurkat (**C**) and ALL-SIL (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



LAT (11B.12): sc-53550. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing membrane and cytoplasmic staining of cells in white pulp and cells in red pulp.

SELECT PRODUCT CITATIONS

1. Mingueneau, M., et al. 2009. Loss of the LAT adaptor converts antigen-responsive T cells into pathogenic effectors that function independently of the T cell receptor. Immunity 31: 197-208.
2. Tai, T.S., et al. 2013. GATA-3 regulates the homeostasis and activation of $CD8^+$ T cells. J. Immunol. 190: 428-437.
3. Yang, Y., et al. 2015. The Us3 protein of herpes simplex virus 1 inhibits T cell signaling by confining linker for activation of T cells (LAT) activation via TRAF6 protein. J. Biol. Chem. 290: 15670-15678.
4. Nguyen, N.N.T., et al. 2018. Hepatitis C virus modulates solute carrier family 3 member 2 for viral propagation. Sci. Rep. 8: 15486.
5. Yang, T., et al. 2020. Transcriptomic signature of gut microbiome-contacting cells in colon of spontaneously hypertensive rats. Physiol. Genomics 52: 121-132.
6. Zhu, Y., et al. 2022. Allosteric inhibition of SHP2 uncovers aberrant TLR7 trafficking in aggravating psoriasis. EMBO Mol. Med. 14: e14455.
7. Sugimoto, C., et al. 2022. Reprogramming and redifferentiation of mucosal-associated invariant T cells reveal tumor inhibitory activity. Elife 11: e70848.
8. Kim, H.W., et al. 2022. NAD^+-boosting molecules suppress mast cell degranulation and anaphylactic responses in mice. Theranostics 12: 3316-3328.
9. Saitoh, K., et al. 2022. STAP-2 is a novel positive regulator of TCR-proximal signals. J. Immunol. 209: 57-68.
10. Chang, H.W., et al. 2023. Thalidomide attenuates mast cell activation by upregulating SHP-1 signaling and interfering with the action of CRBN. Cells 12: 469.

RESEARCH USE

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