

LAT (F-7): sc-514182

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 PLC γ 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 PLC γ 1, 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.

REFERENCES

- Weiss, A., et al. 1991. Signal transduction by the T cell antigen receptor. *Semin. Immunol.* 3: 313-324.
- Isakov, N., et al. 1994. The role of tyrosine kinases and phosphotyrosine-containing recognition motifs in regulation of the T cell-antigen receptor-mediated signal transduction pathway. *J. Leukoc. Biol.* 55: 265-271.
- Zhang, W., et al. 1998. LAT: the ZAP-70 tyrosine kinase substrate that links T cell receptor to cellular activation. *Cell* 92: 83-92.
- Cantrell, D. 1998. The real LAT steps forward. *Trends Cell Biol.* 8: 180-182.
- Zhang, W., et al. 1998. LAT palmitoylation: its essential role in membrane microdomain targeting and tyrosine phosphorylation during T cell activation. *Immunity* 9: 239-246.
- Brdicka, T., et al. 1998. T cell receptor signalling results in rapid tyrosine phosphorylation of the linker protein LAT present in detergent-resistant membrane microdomains. *Biochem. Biophys. Res. Commun.* 248: 356-360.
- Cho, S., et al. 2004. Structural basis for differential recognition of tyrosine-phosphorylated sites in the linker for activation of T cells (LAT) by the adaptor Gads. *EMBO J.* 23: 1441-1451.

CHROMOSOMAL LOCATION

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

SOURCE

LAT (F-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 35-58 at the N-terminus of LAT of human origin.

STORAGE

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

PROTOCOLS

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

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514182 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

LAT (F-7) is recommended for detection of LAT of mouse, rat and human 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 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.

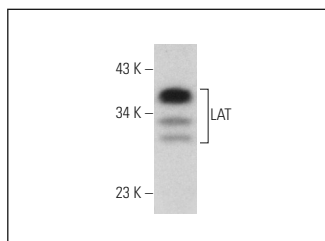
Positive Controls: HuT 78 whole cell lysate: sc-2208.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- 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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.
- Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 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



LAT (F-7): sc-514182. Western blot analysis of LAT expression in HuT 78 whole cell lysate.

RESEARCH USE

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