

Lat Antibody / Linker for activation of T cells (FY12992)

Catalog No.	Formulation	Size
FY12992	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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Availability	1-2 days
Species Reactivity	Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na ₂ HPO ₄ .
UniProt	O54957
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This Lat antibody is available for research use only.

Description

LAT antibody detects Linker for activation of T cells, a critical transmembrane adaptor protein that functions as a central scaffold in T-cell receptor (TCR) signaling. The UniProt recommended name is Linker for activation of T cells (LAT). This protein coordinates the assembly of multiprotein complexes that mediate T-cell activation, proliferation, and immune response regulation. LAT is indispensable for coupling TCR engagement to downstream signaling cascades that drive cytokine production and effector cell differentiation.

Functionally, LAT antibody identifies a 233-amino-acid membrane protein that localizes to lipid rafts of the plasma membrane. Upon TCR stimulation, the Src-family kinase Lck and the ZAP-70 tyrosine kinase phosphorylate multiple tyrosine residues on LAT, creating docking sites for SH2-domain-containing proteins such as Grb2, PLC-gamma1, and Gads. These interactions recruit downstream effectors that activate calcium flux, MAPK signaling, and transcriptional pathways including NFAT, NF-kappaB, and AP-1. Through these mechanisms, LAT orchestrates the signal amplification necessary for full T-cell activation.

The LAT gene is located on chromosome 16p11.2 and encodes a single-pass type III transmembrane protein with a short

extracellular domain and a cytoplasmic tail rich in tyrosine residues. The LAT scaffold acts as an organizational hub, integrating signals from the TCR, co-stimulatory receptors, and cytokine receptors. LAT phosphorylation dynamics are tightly regulated to prevent aberrant T-cell activation and autoimmunity. In developing thymocytes, LAT signaling contributes to both positive and negative selection, shaping the mature T-cell repertoire.

Defects in LAT expression or phosphorylation impair T-cell development and lead to severe combined immunodeficiency-like phenotypes. Conversely, gain-of-function mutations or dysregulated LAT signaling can cause hyperactivation syndromes, lymphoproliferative disorders, or autoimmunity. LAT also functions in mast cells, natural killer cells, and platelets, where it mediates Fc receptor-dependent signaling and degranulation responses.

LAT antibody is widely used in immunology, signal transduction, and cell biology research. It is suitable for western blotting, flow cytometry, and immunofluorescence to examine TCR-induced phosphorylation and signal complex formation. Researchers employ this antibody to dissect T-cell activation pathways and study immune regulation at the molecular level. LAT serves as a key marker of functional TCR signaling in both primary immune cells and model systems.

Structurally, LAT contains a cytoplasmic region with multiple phosphorylation sites that function as SH2-binding motifs for signaling partners. It forms large signalosomes through multivalent interactions that promote phase-separated clusters at the membrane. NSJ Bioreagents provides LAT antibody reagents validated for use in T-cell activation, immune signaling, and phosphorylation research.

Application Notes

Optimal dilution of the Lat antibody should be determined by the researcher.

Immunogen

E.coli-derived mouse Lat recombinant protein (Position: R29-E217) was used as the immunogen for the Lat antibody.

Storage

After reconstitution, the Lat antibody can be stored for up to one month at 4°C. For long-term, aliquot and store at -20°C. Avoid repeated freezing and thawing.