

p-Lck (pY505.4): sc-136184

BACKGROUND

The Src gene family of membrane-associated protein tyrosine kinases include c-Src, c-Yes, Fyn, Lck, Hck, Lyn, Blk and c-Fgr. The human Lck gene encodes a lymphocyte-specific tyrosine kinase designated pp56 Lck. Rearrangement and overexpression of the Lck gene occurs in select murine lymphomas. Human lymphomas and neuroblastomas frequently exhibit chromosomal abnormalities within a site in the genome that contains the Lck gene. Resting T cells contain high levels of the Lck protein and mRNA, both of which decline upon activation of T cells. Lck expression may contribute to the pathogenesis of some types of neoplastic disease. Csk phosphorylates Lck on Tyr 505. This phosphorylation event suppresses Lck catalytic activity under certain conditions. The phosphorylation of Lck at Tyr 394 stimulates Lck activity regardless of Tyr 505 phosphorylation status. In response to T cell antigen receptor binding and subsequent signaling, Lck undergoes phosphorylation on residues that include Tyr 192, Ser 59 and Ser 194.

REFERENCES

- Marth, J.D., et al. 1985. A lymphocyte-specific protein-tyrosine kinase gene is rearranged and overexpressed in the murine T cell lymphoma LSTRA. *Cell* 43: 393-404.
- Marth, J.D., et al. 1987. Regulation of pp56 Lck during T cell activation: functional implications for the Src-like protein tyrosine kinases. *EMBO J.* 6: 2727-2734.
- Bolen, J.B., et al. 1991. Expression and interactions of the Src family of tyrosine protein kinases in T lymphocytes. *Adv. Cancer Res.* 57: 103-149.
- Bergman, M., et al. 1992. The human p50 Csk tyrosine kinase phosphorylates p56 Lck at Tyr-505 and downregulates its catalytic activity. *EMBO J.* 11: 2919-2924.
- Couture, C., et al. 1994. Activation of p56 Lck by p72 Syk through physical association and N-terminal tyrosine phosphorylation. *Mol. Cell. Biol.* 14: 5249-5258.
- Yamaguchi, H. and Hendrickson, W.A. 1996. Structural basis for activation of human lymphocyte kinase Lck upon tyrosine phosphorylation. *Nature* 384: 484-489.
- Couture, C., et al. 1996. Regulation of the Lck SH2 domain by tyrosine phosphorylation. *J. Biol. Chem.* 271: 24880-24884.
- Hardwick, J.S. and Sefton, B.M. 1997. The activated form of the Lck tyrosine protein kinase in cells exposed to hydrogen peroxide is phosphorylated at both Tyr 394 and Tyr 505. *J. Biol. Chem.* 272: 25429-25432.

CHROMOSOMAL LOCATION

Genetic locus: LCK (human) mapping to 1p35.1; Lck (mouse) mapping to 4 D2.2.

SOURCE

p-Lck (pY505.4) is a mouse monoclonal antibody raised against a short amino acid sequence containing Tyr 505 phosphorylated Lck of human origin.

RESEARCH USE

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

PRODUCT

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

APPLICATIONS

p-Lck (pY505.4) is recommended for detection of Tyr 505 phosphorylated Lck of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Lck siRNA (h): sc-29392, Lck siRNA (m): sc-35799, Lck shRNA Plasmid (h): sc-29392-SH, Lck shRNA Plasmid (m): sc-35799-SH, Lck shRNA (h) Lentiviral Particles: sc-29392-V and Lck shRNA (m) Lentiviral Particles: sc-35799-V.

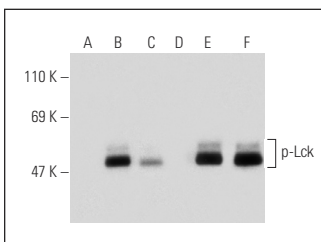
Molecular Weight of p-Lck: 56 kDa.

Positive Controls: Lck (m): 293T Lysate: sc-125538, Lck (h4): 293 Lysate: sc-158678 or CCRF-HSB-2 cell lysate: sc-2265.

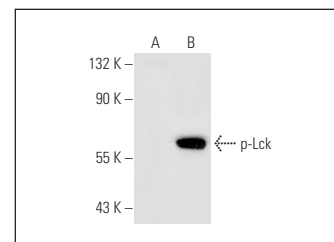
RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Western blot analysis of Lck phosphorylation in non-transfected: sc-117752 (A, D), mouse Lck transfected: sc-125538 (B, E) and lambda protein phosphatase (sc-200312A) treated mouse Lck transfected: sc-125538 (C, F) 293T whole cell lysates. Antibodies tested include p-Lck (pY505.4): sc-136184 (A, B, C) and Lck (H-95): sc-28882 (D, E, F).



p-Lck (pY505.4): sc-136184. Western blot analysis of Lck phosphorylation in non-transfected: sc-110760 (A) and human Lck transfected: sc-158678 (B) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

- Moogk, D., et al. 2016. Constitutive Lck activity drives sensitivity differences between CD8⁺ memory T cell subsets. *J. Immunol.* 197: 644-654.

STORAGE

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