3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Anti-phospho Lck (pTyr^{505})
Developed in Rabbit, Affinity Isolated Antibody

Product Number **L 4542**

Product Description

Anti-phospho Lck (pTyr^{505}) is developed in rabbit using a synthetic phosphorylated peptide derived from the region of Lck that is phosphorylated on tyrosine 505 as immunogen. The antibody is preadsorbed to remove any reactivity towards a non-phosphorylated Lck.

Anti-phospho Lck (pTyr^{505}) specifically recognizes human Lck (pTyr^{505}). Mouse (100% homologous) and chicken (91.7% homologous) have not been tested. It has been used in immunoblotting applications.

Lck protein also known as T cell-specific protein-tyrosine kinase, p56^{Lck} or p56Lck, a member of the Src family of non-receptor tyrosine protein kinases, is a 56 kDa protein expressed predominantly in T cells. The T cell antigen receptor (TCR) plays a crucial role in thymocyte differentiation and T cell activation. After the antigen binds to the TCR, and engages other co-receptors and their ligands (such as CD4, major histocompatibility complex class II, CD28, B7, CD8, and MHC I), signal transduction cascades are activated. At least three protein-tyrosine kinases are known to be involved in TCR signaling at the level of the receptor, including p59Fyn, p56Lck, and ZAP70.[1, 2] STAT5 transcription factor becomes immediately and transiently phosphorylated on tyrosine 694. Studies using an Lck-deficient T cell line confirmed the role of Lck in TCR stimulated STAT5 activation. [3]

The activity of Lck is known to be regulated by phosphorylation of two conserved tyrosine residues, tyrosine 505 (equivalent to tyrosine 529 in c-Src) and tyrosine 394 (equivalent to tyrosine 418 in c-Src). Tyrosine-505 is located near the carboxyl terminus of Lck and, when phosphorylated, associates intramolecularly with the SH2 domain in the amino-terminal half of the protein. This helps stabilize Lck in a conformation that, biologically, is relatively inactive. In the absence of phosphorylation at tyrosine 505, intramolecular binding of the carboxyl terminus to the SH2 domain does not occur, and Lck exhibits increased activity *in vivo*.

Reagent

Anti-phospho Lck (pSer^{158}) is supplied as a solution in phosphate buffer, pH 7.4, with 1 mg/ml BSA (IgG and protease free) and 0.05% sodium azide.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

Store at –70 °C. For extended storage, freeze in working aliquots. Avoid repeated freezing and thawing to prevent denaturing of the antibody. Do not store in a frost-free freezer. The antibody is stable for at least 12 months when stored appropriately

Product Profile

A recommended working concentration of 0.1 to 1.0 µg/ml is determined by immunoblotting using a full length recombinant human Lck protein.

Note: In order to obtain best results in different techniques and preparations, we recommend determining optimal working concentration by titration test.

References

1. Saint-Ruf, C. et al., Different initiation of pre-TCR and γ-δ-TCR signaling. Nature, **406**, 524-527 (2000).
2. Fujimaki, W., et al., Functional uncoupling of TCR engagement and Lck activation in anergic human thymic CD4{super+} T cells. J. Biol. Chem., **276**, 17455-17460 (2001).
3. Welte, T., et al., STAT5 interaction with the T cell receptor complex and stimulation of T cell proliferation. Science, **283,** 222-225 (1999).
4. Couture, C., et al. Regulation of the Lck SH2 domain by tyrosine phosphorylation. J. Biol. Chem. **271**, 24880-24884 (1996).

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