abcam

ab227976

Anti-Lck antibody [EPR20798-55]

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR20798-55
Purification technique	Affinity purification Protein A
Concentration	0.54 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat

Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Human
Dilution info	1/50
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Target data

See full target information LCK

Function

Non-receptor tyrosine-protein kinase that plays an essential role in the selection and maturation of developing T-cells in the thymus and in the function of mature T-cells (PubMed:2470098). Plays a key role in T-cell antigen receptor (TCR)-linked signal transduction pathways (PubMed:2470098). Constitutively associated with the cytoplasmic portions of the CD4 and CD8 surface receptors (PubMed:2470098). Association of the TCR with a peptide antigen-bound MHC complex facilitates the interaction of CD4 and CD8 with MHC class II and class I molecules, respectively, thereby recruiting the associated LCK protein to the vicinity of the TCR-CD3 complex (PubMed:2470098). LCK then phosphorylates tyrosine residues within the immunoreceptor tyrosine-based activation motifs (ITAM) of the cytoplasmic tails of the TCR-gamma chains and CD3 subunits, initiating the TCR-CD3 signaling pathway (PubMed:2470098, PubMed:40592325). Once stimulated, the TCR recruits the tyrosine kinase ZAP70, that becomes phosphorylated and activated by LCK. Following this, a large number of signaling molecules are recruited, ultimately leading to lymphokine production. LCK also contributes to signaling by other receptor molecules. Associates directly with the cytoplasmic tail of CD2, which

leads to hyperphosphorylation and activation of LCK. Also plays a role in the IL2 receptor-linked signaling pathway that controls the T-cell proliferative response. Binding of IL2 to its receptor results in increased activity of LCK. Is expressed at all stages of thymocyte development and is required for the regulation of maturation events that are governed by both pre-TCR and mature alpha beta TCR. Phosphorylates other substrates including RUNX3, PTK2B/PYK2, the microtubule-associated protein MAPT, RHOH or TYROBP. Interacts with FYB2 (PubMed:27335501).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Lck also known as lymphocyte-specific protein tyrosine kinase plays an important role in T-cell activation. It serves as an enzyme and is integral in the signal

	transduction of the immune system. Lck has a molecular weight of approximately 56 kDa. It is expressed predominantly in T lymphocytes and is part of the Src family kinases. This protein is important in phosphorylating substrates leading to downstream signaling events that are necessary for the proper immune function.
Biological function summary	Lck initiates and propagates T-cell receptor (TCR) signaling cascades. It interacts with the CD4 and CD8 co-receptors and triggers the activation of other kinases within the cell. Lck as part of a signaling complex associates with proteins such as ZAP-70 and LAT facilitating the assembly of larger molecular machines necessary for immune responses. Its activity is tightly regulated by phosphorylation with key sites being tyrosine 394 and 505.
Pathways	The Lck protein plays an essential role in TCR signaling and immune responses. It actively participates in the Lck signaling pathway setting off cascades that lead to T-cell activation and differentiation. It interacts closely with other proteins like Fyn and Src making sure that the pathway progresses correctly. In conjunction with the immune synapse Lck ensures the transmission of signals that allow the T-cells to respond to external antigens efficiently.
Associated diseases and disorders	Defective Lck activity can contribute to immunodeficiencies and autoimmune diseases. Proper Lck function is linked to conditions like Severe Combined Immunodeficiency (SCID) and lupus. Dysregulation in Lck activity may also affect proteins such as ZAP-70 worsening disease progression. Understanding Lck's participation in these conditions can lead to better therapeutic interventions and aid in developing targeted treatments for immune-related disorders.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

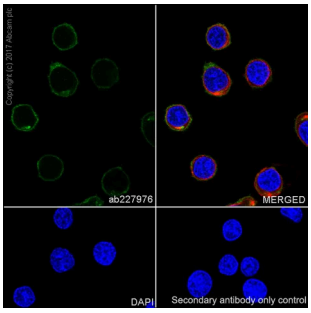
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

9 product images

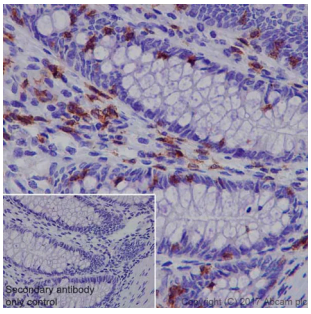


Immunocytochemistry/ Immunofluorescence - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Lck antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1%, Triton X-100-permeabilized Ramos (human Burkitt's lymphoma cell line) cells labeling Lck with ab227976 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing membranous staining on the Ramos B cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

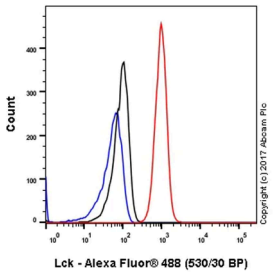


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lck antibody

Immunohistochemical analysis of paraffin-embedded human colon tissue labeling Lck with ab227976 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous and cytoplasmic staining in T cells of human colon (PMID: 16769579). Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

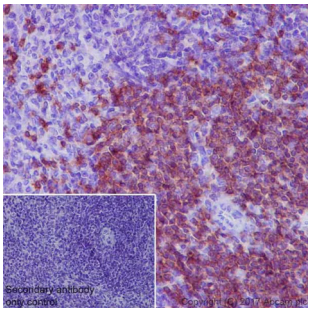
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Flow Cytometry (Intracellular) staining using rabbit Anti-Lck antibody

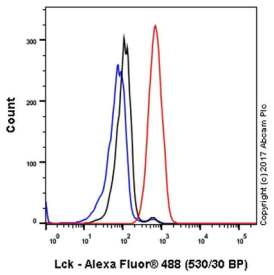
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized Jurkat (human T cell leukemia cell line from peripheral blood) cell line labeling Lck with ab227976 at 1/500 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lck antibody [EPR20798-55] (ab227976)

Immunohistochemical analysis of paraffin-embedded mouse spleen tissue labeling Lck with ab227976 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous and cytoplasmic staining in mouse spleen reactive lymph node and T cells (PMID: 16769579). Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

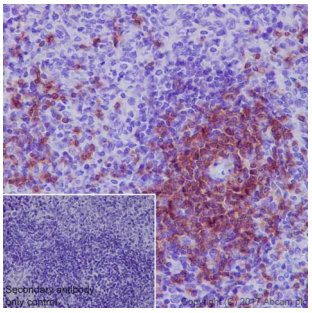
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Flow Cytometry (Intracellular) staining using rabbit Anti-Lck antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized WEHI-231 (mouse lymphoblast B cell lymphoma cell line) cell line labeling Lck with ab227976 at 1/50 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.

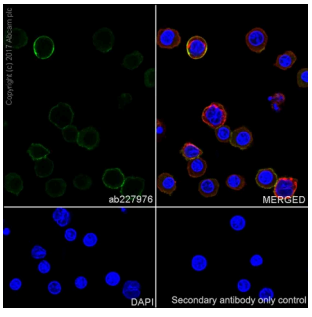


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Lck antibody

Immunohistochemical analysis of paraffin-embedded rat spleen tissue labeling Lck with ab227976 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Membranous and cytoplasmic staining in rat spleen reactive lymph node and T cells (PMID: 16769579) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

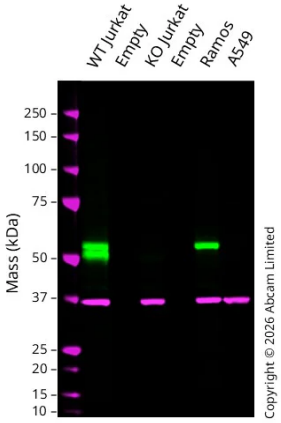


Immunocytochemistry/ Immunofluorescence - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Lck antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1%, Triton X-100-permeabilized WEHI-231 (mouse lymphoblast B cell lymphoma cell line) cells labeling Lck with ab227976 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing membranous staining on WEHI-231 B cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Western blot - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Western blot staining using rabbit Anti-Lck antibody

Western blot: Anti-Lck antibody [EPR20798-55] ab227976 staining at 1/1000 dilution, shown in green; Mouse anti GAPDH ab8245 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 57 kDa in Wild-type Jurkat cell lysates with no signal observed at this size in Empty cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-Lck antibody [EPR20798-55] (ab227976) at 1/1000 dilution

Lane 1:
Wild-type Jurkat cell lysates at 20 µg

Lanes 2 and 4:
Empty

Lane 3:
Western blot - Human LCK knockout Jurkat cell line (ab273855) at 20 µg

Lane 5:
Ramos cell lysates at 20 µg

Lane 6:
A549 cell lysates at 20 µg

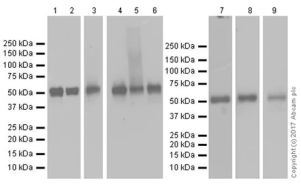
Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 60 kDa

Observed band size: 57 kDa



Western blot - Anti-Lck antibody [EPR20798-55] (ab227976)

Lck Western blot staining using rabbit Anti-Lck antibody

Exposure times: Lanes 1,2: 10 seconds; Lane 3: 3 seconds; Lanes 4-6,9: 2 seconds; Lane 7: 15 seconds; Lane 8: 5 seconds.

Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Lck antibody [EPR20798-55] (ab227976) at 1/1000 dilution

Lane 1:
Human thymus tissue lysate at 20 µg

Lane 2:
Human tonsil tissue lysate at 20 µg

Lane 3:
Mouse lymph node tissue lysate at 20 µg

Lane 4:
WEHI-231 (mouse lymphoblast B cell lymphoma cell line) whole cell lysate at 20 µg

Lane 5:
Mouse thymus tissue lysate at 20 µg

Lane 6:
Rat thymus tissue lysate at 20 µg

Lane 7:
Raji (human Burkitt's lymphoma cell line) whole cell lysate at 20 µg

Lane 8:
Ramos (human Burkitt's lymphoma cell line) whole cell lysate at 20 µg

Lane 9:
Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Developed using the ECL technique.

Predicted band size: 58 kDa

Observed band size: 58 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.