abcam

ab45141

Anti-JAK3 antibody [EP909Y]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.05% Sodium azide Constituents: 50% Tissue culture supernatant, 40% Glycerol (glycerin, glycerine), 9.85% Tris glycine, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP909Y
Purity	Tissue culture supernatant

Reactivity data

IP

Tested

Species	Human
Dilution info	1/60
Notes	-

WB

Tested

Species	Human
Dilution info	1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

IHC-P

Tested

Species	Human
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information JAK3

Function	Non-receptor tyrosine kinase involved in various processes such as cell growth, development, or differentiation. Mediates essential signaling events in both innate and adaptive immunity and plays a crucial role in hematopoiesis during T-cells development. In the cytoplasm, plays a pivotal role in signal transduction via its association with type I receptors sharing the common subunit gamma such as

IL2R, IL4R, IL7R, IL9R, IL15R and IL21R. Following ligand binding to cell surface receptors, phosphorylates specific tyrosine residues on the cytoplasmic tails of the receptor, creating docking sites for STATs proteins. Subsequently, phosphorylates the STATs proteins once they are recruited to the receptor. Phosphorylated STATs then form homodimer or heterodimers and translocate to the nucleus to activate gene transcription. For example, upon IL2R activation by IL2, JAK1 and JAK3 molecules bind to IL2R beta (IL2RB) and gamma chain (IL2RG) subunits inducing the tyrosine phosphorylation of both receptor subunits on their cytoplasmic domain. Then, STAT5A and STAT5B are recruited, phosphorylated and activated by JAK1 and JAK3. Once activated, dimerized STAT5 translocates to the nucleus and promotes the transcription of specific target genes in a cytokine-specific fashion.

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

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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	JAK3 also known as Janus kinase 3 is a protein with a molecular mass of approximately 125 kDa. It belongs to the Janus kinase family and plays an important role in the signal transduction pathways. JAK3 is expressed mainly in hematopoietic cells which include white blood cells and related precursor cells. Its primary function involves mediating signaling by associating with the common gamma chain used by cytokine receptors.
Biological function summary	JAK3 is instrumental in the signaling mechanism of the immune system. It participates in the activation of various interleukins specifically those that signal through the common gamma chain receptor complex. JAK3's role is essential in the proper functioning and development of immune cells such as T cells and natural killer cells. Within this framework JAK3 pairs with cytokine receptors transmitting signals that regulate both proliferation and differentiation of these immune cells.
Pathways	JAK3 integrates into JAK-STAT signaling pathways. This protein works alongside STAT proteins including STAT5 to facilitate the transcription of genes involved in cell survival and proliferation. It also interacts with JAK1 another member of the Janus kinase family to form functional complexes. These interactions are pivotal in maintaining normal immune responses and ensuring that signaling pathways are activated appropriately in response to extracellular cues.
Associated diseases and disorders	Abnormal JAK3 function can lead to immune-related conditions. Severe combined immunodeficiency (SCID) is one such disorder arising from JAK3 mutations that impair immune cell function. Additionally JAK3 dysregulation links to malignancies such as T-cell acute lymphoblastic leukemia. Relating to these disorders JAK3 affects proteins like IL-7R and gamma chains which are important for cytokine signaling contributing to pathologies when malfunctioning.

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

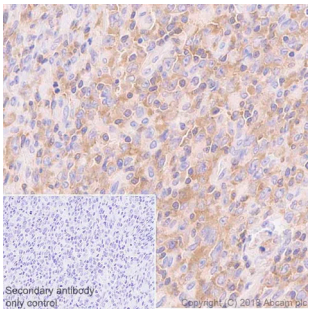
We do not recommend this combination. It is not covered by our product promise.

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.

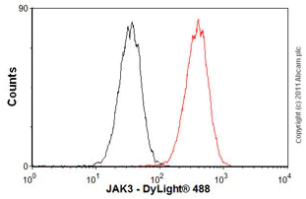
Full details and terms and conditions can be found here:
Terms & Conditions.

8 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-JAK3 antibody [EP909Y] (ab45141)

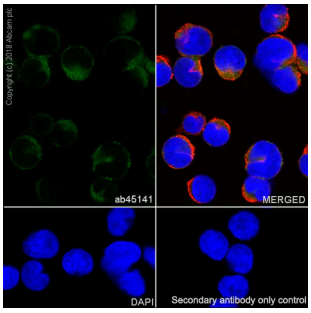
Immunohistochemistry (Formalin/PFA-fixed paraffin embedded sections) analysis of Human NK cell lymphoma tissue sections labeling JAK3 using purified ab45141. Samples were incubated the primary antibody at 1:2000 dilution (0.60 µg/ml). Hematoxylin was used as a counterstain. PBS instead of primary antibody was used for negative control. A ready to use ImmunoHistoProbe one step HRP Polymer at 1:0 dilution was used as the secondary antibody. Heatm mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0).



Flow Cytometry (Intracellular) - Anti-JAK3 antibody [EP909Y] (ab45141)

JAK3 Flow Cytometry (Intracellular) staining using rabbit Anti-JAK3 antibody

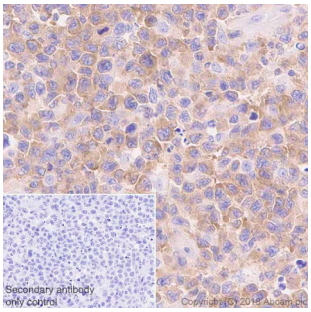
Overlay histogram showing Jurkat (Human T cell leukemia cell line from peripheral blood) cells stained with ab45141 (red line). The cells were fixed with 80% methanol (5 minutes) and then permeabilized with 0.1% PBS-Tween for 20 minutes. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab45141, 1/100 dilution) for 30 minutes at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 minutes at 22°C. Isotype control antibody (black line) was rabbit IgG (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in Jurkat cells fixed with 4% paraformaldehyde (10 minutes)/permeabilized in 0.1% PBS-Tween used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-JAK3 antibody [EP909Y] (ab45141)

JAK3 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-JAK3 antibody

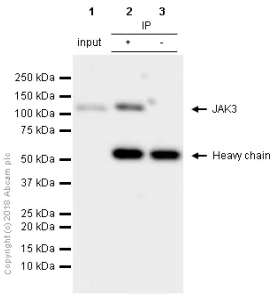
Immunocytochemistry/Immunofluorescence analysis of KARPAS-299 (human anaplastic large cell lymphoma) labelling JAK3 with ab45141 at a dilution of 1:100 dilution (12 µg/ml). Cells were fixed with 100% Methanol. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) (1:1000 dilution (2 µg/ml)) was used as the secondary antibody. The cells were co-stained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Nuclei counterstained with DAPI (blue). Control: PBS instead of the primary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-JAK3 antibody [EP909Y] (ab45141)

JAK3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-JAK3 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin embedded sections) analysis of Human large B cell lymphoma tissue sections labeling JAK3 using purified ab45141. Samples were incubated the primary antibody at 1:2000 dilution (0.60 µg/ml). Hematoxylin was used as a counterstain. PBS instead of primary anitbody was used for negative control. A ready to use ImmunoHistoProbe one step HRP Polymer at 1:0 dilution was used as the secondary antibody. Heatm mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0).

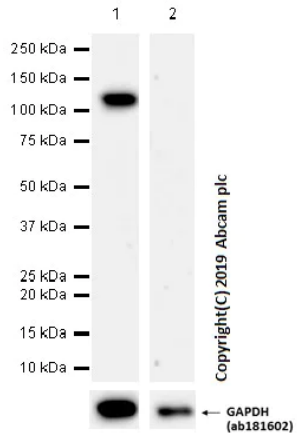


Immunoprecipitation - Anti-JAK3 antibody [EP909Y] (ab45141)

Lane 1 (input): TF-1 (Human Erythroleukemia erythroblast) whole cell lysate, 10µg
Lane 2 (+): TF-1 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab45141 in TF-1 whole cell lysate.

ab45141 at 1/60 immunoprecipitating JAK3 in TF-1 whole cell lysate. For western blotting, ab45141 was used as a primary antibody at 1/500 dilution (2.42 µg/ml). ab131366, VeriBlot for IP Detection Reagent was used for detection at 1/1000 dilution. Blocking and diluting buffer used was 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-JAK3 antibody [EP909Y] (ab45141)

Predicted band size: 125 kDa



Western blot - Anti-JAK3 antibody [EP909Y] (ab45141)

Blocking/Diluting buffer and concentration 5% NFDM/TBST
The expression profile observed in HaCaT is consistent with the literature (PMID: 11709700).
Negative control: HaCaT (PMID: 11709700)

All lanes:
Western blot - Anti-JAK3 antibody [EP909Y] (ab45141) at 1/1000 dilution

Lane 1:
TF-1 (Human Erythroleukemia erythroblast) whole cell lysate at 20 µg

Lane 2:
HaCaT (Human skin keratinocyte) whole cell lysate at 20 µg

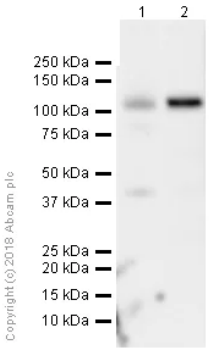
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 125 kDa

Observed band size: 125 kDa

Exposure time: 3min



Western blot - Anti-JAK3 antibody [EP909Y] (ab45141)

Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-JAK3 antibody [EP909Y] (ab45141) at 1.21 µg/mL

Lane 1:
KARPAS-299 (Human anaplastic large cell lymphoma) whole cell lysate at 20 µg

Lane 2:
HEL (Human Erythroleukemia erythroblast) whole cell lysate at 20 µg

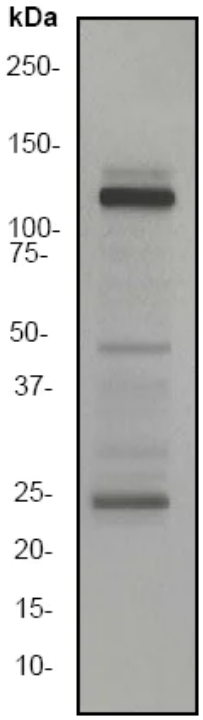
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 125 kDa

Observed band size: 125 kDa

Exposure time: 26s



Western blot - Anti-JAK3 antibody [EP909Y] (ab45141)

All lanes:
Western blot - Anti-JAK3 antibody [EP909Y] (ab45141) at 1/2000 dilution

All lanes:
TF-1 (Human bone marrow erythroleukemia cell line) cell lysate

Predicted band size: 125 kDa

Observed band size: 125 kDa

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