abcam

ab278664

FITC Anti-JAK2 (phospho Y1007 + Y1008) antibody [JAK2Y10071008-PB6]

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	FITC
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS, 0.2% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human JAK2 pY1007 + Y1008. The exact immunogen used to generate this antibody is proprietary information. Database link O60674
Clone number	JAK2Y10071008-PB6
Purification technique	Affinity purification Protein A/G
Light chain type	kappa

Reactivity data

Flow Cyt

Tested

Species	Human

Dilution info	5 µL for 10^6 Cells
Notes	-

Target data

See full target information JAK2 pY1007 + Y1008

Function	Non-receptor tyrosine kinase involved in various processes such as cell growth, development, differentiation or histone modifications. Mediates essential signaling events in both innate and adaptive immunity. In the cytoplasm, plays a pivotal role in signal transduction via its association with type I receptors such as growth hormone (GHR), prolactin (PRLR), leptin (LEPR), erythropoietin (EPOR), thrombopoietin receptor (MPL/TPOR); or type II receptors including IFN-alpha, IFN-beta, IFN-gamma and multiple interleukins (PubMed:15690087, PubMed:7615558, PubMed:9657743, PubMed:15899890). Following ligand-binding to cell surface receptors, phosphorylates specific tyrosine residues on the cytoplasmic tails of the receptor, creating docking sites for STATs proteins (PubMed:15690087, PubMed:9618263). 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, cell stimulation with erythropoietin (EPO) during erythropoiesis leads to JAK2 autophosphorylation, activation, and its association with erythropoietin receptor (EPOR) that becomes phosphorylated in its cytoplasmic domain (PubMed:9657743). Then, STAT5 (STAT5A or STAT5B) is recruited, phosphorylated and activated by JAK2. Once activated, dimerized STAT5 translocates into the nucleus and promotes the transcription of several essential genes involved in the modulation of erythropoiesis. Part of a signaling cascade that is activated by increased cellular retinol and that leads to the activation of STAT5 (STAT5A or STAT5B) (PubMed:21368206). In addition, JAK2 mediates angiotensin-2-induced ARHGEF1 phosphorylation (PubMed:20098430). Plays a role in cell cycle by phosphorylating CDKN1B (PubMed:21423214). Cooperates with TEC through reciprocal phosphorylation to mediate cytokine-driven activation of FOS transcription. In the nucleus, plays a key role in chromatin by specifically mediating phosphorylation of 'Tyr-41' of histone H3 (H3Y41ph), a specific tag that promotes exclusion of CBX5 (HP1 alpha) from chromatin (PubMed:19783980). Up-regulates the potassium voltage-gated channel activity of KCNA3 (PubMed:25644777).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Storage information	Store in the dark

Notes

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	JAK2 also known as Janus kinase 2 is a protein tyrosine kinase with a molecular weight of 125 kDa. It plays an essential mechanical role in the signaling pathways by acting as an intermediary between cell surface receptors and intracellular signaling molecules. The JAK2 protein binds to certain cytokine receptors facilitating signal transduction necessary for various cellular responses. JAK2 is expressed in many tissues including hematopoietic cells which are associated with the blood and immune systems.
Biological function summary	JAK2 is important for transmitting signals that dictate cell growth survival and differentiation within the hematopoietic system. It operates bodily functions by forming complexes with specific phosphorylation sites on its associated receptors. Through this formation JAK2 influences the signaling cascade particularly by interacting with other signal transducers and activators where it phosphorylates and becomes activated. This action affects gene transcription directly correlated with cellular proliferation and differentiation processes.
Pathways	The function of JAK2 integrates into the JAK-STAT signaling pathway which is an important pathway in the regulation of immune function growth and development. It works in conjunction with proteins such as STAT3 and STAT5 to transmit signals from cytokine receptors to the nucleus. This pathway critically impacts responses like inflammation and hematopoiesis aligning with its role in precursor proliferation within the bone marrow and various immune cells' function.
Associated diseases and disorders	JAK2 has significant implications in conditions like myeloproliferative neoplasms and polycythemia vera. Mutations in the JAK2 gene notably the JAK2 V617F mutation lead to uncontrolled cell division as they disrupt normal signaling mechanisms often resulting in blood cell disorders. In these contexts JAK2 interacts with proteins such as EpoR and MPL which play roles within these disease pathways. Understanding how JAK2 mutations contribute to disease progression offers pathways for targeted therapies.

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.

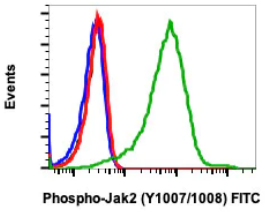
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

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1 product image



Flow Cytometry - FITC Anti-JAK2 (phospho Y1007 + Y1008) antibody [JAK2Y10071008-PB6] (ab278664)

JAK2 (phospho Y1007 + Y1008) Flow Cytometry staining using rabbit Anti-JAK2 (phospho Y1007 + Y1008) antibody

Flow cytometric analysis of Jurkat cells untreated (red) or treated with IFNa+IL4+pervanadate (green) using ab278664, or concentration-matched Rabbit (G9) mAb IgG Isotype Control (FITC Conjugate) for cells untreated (black) or treated with IFNa+IL4+pervanadate (blue).

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