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Recombinant Anti-JAK2 (Phospho-Y1007/Y1008) Rabbit mAb

Catalog # AP95005

Product Information

Application	WB, IHC, FC, IP, IF/IC
Primary Accession	O60674
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Monoclonal
Calculated MW	130674

Additional Information

Gene ID	3717
Other Names	Tyrosine-protein kinase JAK2; Janus kinase 2; JAK-2
Target/Specificity	KLH-conjugated synthetic Phospho-peptide corresponding to residues surrounding Y1007/Y1008 of human JAK2. The exact sequence is proprietary.
Dilution	WB~~WB (1/500 - 1/1000) IHC~~1:100~500 FC~~1:10~50 IP~~N/A IF/IC~~N/A
Format	Liquid in PBS, pH 7.3, 50% glycerol, 0.05% BSA, and 0.05% Proclin300.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

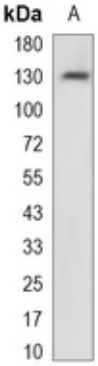
Name	JAK2 (HGNC:6192)
Function	Non-membrane spanning protein tyrosine kinase that phosphorylates type I receptors such as growth hormone (GHR), prolactin (PRLR), leptin (LEPR), erythropoietin (EPOR), thrombopoietin receptor (MPL/TPOR); or type II receptors including IFN-alpha, IFN-beta, IFN- gamma and multiple interleukins (PubMed:15690087, PubMed:15899890, PubMed:7615558, PubMed:9188471, PubMed:9657743). Functionally, plays a pivotal role in signal transduction and is involved in various processes such as cell growth, development, differentiation or histone modifications. Mediates essential signaling events in both innate and adaptive immunity. Mechanistically, 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). Binding of CNTF or the CLCF1/CLF heterodimer to CNTFR leads to IL6ST/gp130-LIFR dimerization followed by activation of JAK1 and JAK2 which in turns phosphorylate IL6ST/gp130 and LIFR (PubMed:11294841). The tyrosine phosphorylated signaling receptors serve in turn as docking proteins for STAT3 (PubMed:11294841). Involved in the oncostatin-M-mediated signaling pathway through both type I OSM receptor complex (heterodimers composed of LIFR and IL6ST) and type II OSM receptor complex (heterodimers composed of OSMR and IL6ST) (PubMed:9188471).

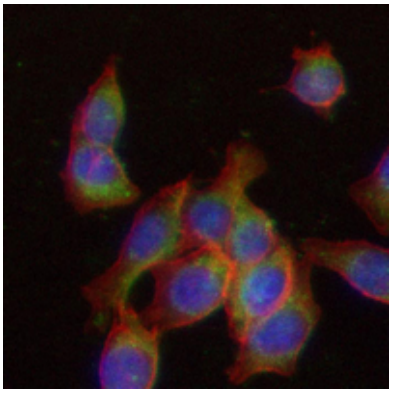
Cellular Location Endomembrane system; Peripheral membrane protein. Cytoplasm. Nucleus

Tissue Location Ubiquitously expressed throughout most tissues.

Images



Western blot analysis of JAK2 (Phospho-Y1007/Y1008) expression in Jurkat treated with Pervanadate (A) whole cell lysates. (Predicted band size: 131 kD; Observed band size: 130 kD)



Immunofluorescent analysis of JAK2 (Phospho-Y1007/Y1008) staining in Jurkat treated with Pervanadate cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a hidified chamber. Cells were washed with PBST and incubated with an AF488-conjugated secondary antibody (green) in PBS at room temperature in the dark. Phalloidin - AF594 was used to stain Actin filaments (red). DAPI was used to stain the cell nuclei (blue).

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