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JAK2 Antibody
Catalog # ASC11889

Specification

JAK2 Antibody - Product Information

Application	**WB, IHC**
Primary Accession	O60674
Other Accession	NP_004963, 4826776
Reactivity	**Human, Mouse, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**IgG**
Calculated MW	**Predicted: 125 kDa** **Observed: 125 kDa KDa**
Application Notes	**JAK2 antibody can be used for detection of JAK2 by Western blot at 1 - 2 µg/ml. Antibody can also be used for immunohistochemistry starting at 5 µg/mL.**

JAK2 Antibody - Additional Information

Gene ID **3717**

Target/Specificity
JAK2; JAK2 antibody is human, mouse and rat reactive. JAK2 antibody is predicted to not cross-react with other members of the JAK family of proteins.

Reconstitution & Storage
JAK2 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.

Precautions
JAK2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

JAK2 Antibody - Protein Information

Name JAK2 (HGNC:6192)

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:<a

href="http://www.uniprot.org/citations/15899890" target="_blank">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).

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

Tissue Location
Ubiquitously expressed throughout most tissues.

JAK2 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

JAK2 Antibody - Images

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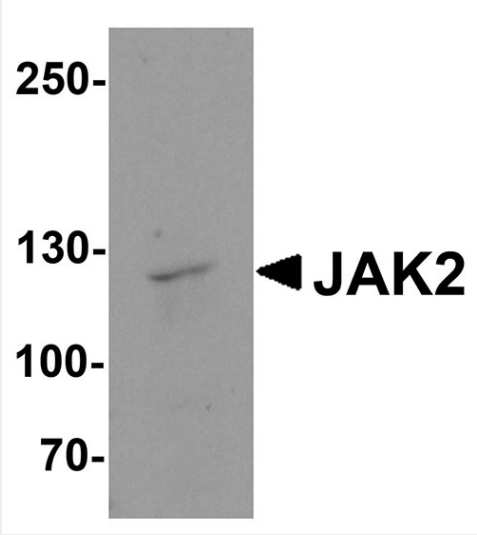
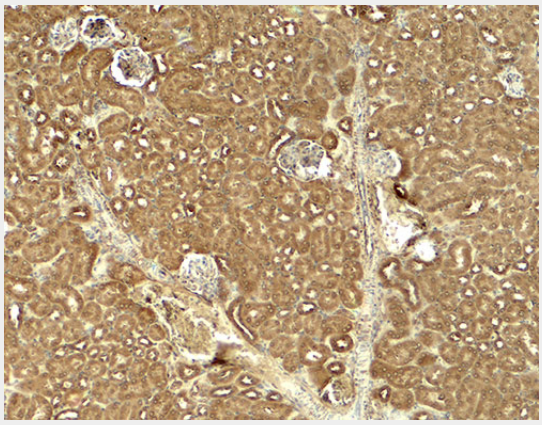


Western blot analysis of JAK2 in HeLa cell lysate with JAK2 antibody at 1 µg/ml.



Immunohistochemistry of JAK2 in mouse kidney tissue with JAK2 antibody at 5 µg/ml.

JAK2 Antibody - Background

JAK2 is a member of the JAK family of kinases that also include JAK1, JAK3, and TYK2 (1,2). JAK kinases are activated following tyrosine phosphorylation of cytokine receptors after ligand binding. JAK2 activation promotes the recruitment and phosphorylation of STAT3 and STAT5. These transcription factors then translocate to the nucleus where they bind specific DNA promoter sequences resulting in the transcription of genes that regulate cell proliferation, differentiation, and apoptosis (3). Mice with a disrupted JAK2 gene exhibit embryonic lethality associated with the absence of definitive erythropoiesis (4).

JAK2 Antibody - References

Wilks AF, Harpur AG, Kurban RR, et al. Two novel protein-tyrosine kinases, each with a second phosphotransferase-related catalytic domain, define a new class of protein kinase. Mol. Cell Biol. 1991; 11:2057-66.
Quintas-Cardama A and Verstovsek S. Molecular pathways: JAK/STAT pathway: mutations, inhibitors, and resistance. Clin. Can. Res. 2013; 19:1933-40.
Levine RL, Pardanani A, Tefferi A, et al. Role of JAK2 in the pathogenesis and therapy of myeloproliferative disorders. Nat. Rev. Cancer 2007; 7:673-83.
Neubauer H, Cumano A, Muller M, et al. Jak2 deficiency defines an essential developmental checkpoint in definitive hematopoiesis. Cell 1998; 93:397-409.