

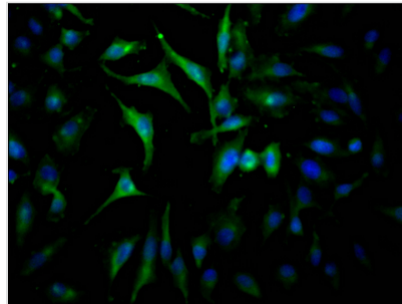


JAK2 Recombinant Monoclonal Antibody

Product Code	CSB-RA267127A0HU
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	O60674
Immunogen	A synthesized peptide derived from human JAK2
Species Reactivity	Human
Tested Applications	ELISA, IF; Recommended dilution: IF:1:20-1:200
Relevance	<p>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 (PLR), leptin (LEPR), erythropoietin (EPOR), thrombopoietin (THPO); or type II receptors including IFN-alpha, IFN-beta, IFN-gamma and multiple interleukins (PubMed:7615558). 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: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. 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. 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).</p>
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Product Type	Recombinant Antibody



Immunogen Species	Homo sapiens (Human)
Research Area	Epigenetics and Nuclear Signaling; Cancer; Cell biology; Signal transduction
Gene Names	JAK2
Clone No.	10B6

Image


Immunofluorescence staining of HeLa Cells with CSB-RA267127A0HU at 1:50, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeated by 0.2% TritonX-100, and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4?. Nuclear DNA was labeled in blue with DAPI. The secondary antibody was FITC-conjugated AffiniPure Goat Anti-Rabbit IgG (H+L).

Description

In order to develop a JAK2 recombinant monoclonal antibody for detecting human JAK2 protein, CUSABIO takes four key steps. The production process involves sequencing the JAK2 monoclonal antibody gene, cloning the gene into a plasmid vector, introducing the recombinant vector into a host cell line, and purifying the JAK2 recombinant monoclonal antibody from the cell culture supernatant using affinity chromatography. The JAK2 monoclonal antibody is derived from the JAK2 antibody-producing hybridomas, and its synthesis includes the immunization of an animal with a synthesized peptide derived from human JAK2. The JAK2 recombinant monoclonal antibody is recommended for use in ELISA and IF applications.

The JAK2 protein is a kinase enzyme that plays a crucial role in the intracellular signaling pathways of various cytokines and growth factors. Upon activation by ligand binding to cell surface receptors, JAK2 phosphorylates specific tyrosine residues on the receptor, leading to the recruitment and phosphorylation of downstream signaling molecules, including STAT proteins. The activated STATs then dimerize, translocate to the nucleus, and activate the transcription of target genes involved in cell proliferation, differentiation, and survival. JAK2 also plays a critical role in erythropoietin (EPO) signaling, which is essential for the regulation of red blood cell production. Mutations in the JAK2 gene have been implicated in various diseases, including myeloproliferative neoplasms and autoimmune disorders.