abcam

## Product datasheet

# Recombinant human JAK2 protein ab42619

3 References 2 Images

### Description

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| **Product name** | Recombinant human JAK2 protein |
| **Biological activity** | Activity: > 124 pmol/min/ug and is lot specific. If you would like more information about the activity of a specific lot, please contact our scientific support team who will be happy to help.<br>One unit defined as the amount of enzyme that will transfer 1nmol phosphate to Tyr substrate per minute at pH 7.4 and 30°C. |
| **Purity** | > 70 % SDS-PAGE.<br>Affinity purified. |
| **Expression system** | Baculovirus infected Sf9 cells |
| **Accession** | NM_004972 |
| **Protein length** | Protein fragment |
| **Animal free** | No |
| **Nature** | Recombinant |
| **Species** | Human |
| **Sequence** | MSPIDPMGHHHHHHGRRRASVAAGILVPRGSPGLDGICSI EEFLFTPDYE LLTENDMLPNMRIGALGFSGAFEDRDPTQFEERHLKFLQQ LGKGNFGSVE MCRYDPLQDNTGEVVAVKKLQHSTEEHLRDFEREIEILKS LQHDNIVKYK GVCYSAGRRNLKLIMEYLPYGSLRDYLQKHKERIDHIKLLQY TSQICKGM EYLGTKRYIHRDLATRNILVENENRVKIGDFGLTKVLPQDKE YYKVKEPG ESPIFWYAPESLTESKFSVASDVWSFGVVLYELFTYIEKSK SPPAEFMRM IGNDKQGQMIVFHLIELLKNNGRLPRPDGCPDEIYMIMTEC WNNNVNQRP SFRDLALRVDQIRDNMAG |
| **Predicted molecular weight** | 43 kDa |
| **Amino acids** | 808 to 1132 |
| **Tags** | His tag N-Terminus |
| **Additional sequence information** | MW: 43 KDa including tag |

## Specifications

Our **Abpromise guarantee** covers the use of **ab42619** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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| **Applications** | SDS-PAGE<br>Functional Studies<br>Inhibition Assay |
| **Form** | Liquid |
| **Additional notes** | Source : Baculovirus infected Sf9 cells |

## Preparation and Storage

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| **Stability and Storage** | Shipped on Dry Ice. Store at -80°C. Avoid freeze / thaw cycle.<br>pH: 8.00<br>Constituents: 0.0462% (R*,R*)-1,4-Dimercaptobutan-2,3-diol, 0.395% Tris HCl, 0.05% Tween, 50% Glycerol (glycerin, glycerine), 0.58% Sodium chloride<br>This product is an active protein and may elicit a biological response in vivo, handle with caution. |

## General Info

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| **Function** | Non-receptor tyrosine kinase involved in various processes such as cell cycle progression, apoptosis, mitotic recombination, genetic instability and histone modifications. In the cytoplasm, plays a pivotal role in signal transduction via its association with cytokine receptors, which constitutes an initiating step in signaling for many members of the cytokine receptor superfamily including the receptors for growth hormone (GHR), prolactin (PRLR), leptin (LEPR), erythropoietin (EPOR), granulocyte-macrophage colony-stimulating factor (CSF2), thrombopoietin (THPO) and multiple interleukins. Following stimulation with erythropoietin (EPO) during erythropoiesis, it is autophosphorylated and activated, leading to its association with erythropoietin receptor (EPOR) and tyrosine phosphorylation of residues in the EPOR cytoplasmic domain. Also involved in promoting the localization of EPOR to the plasma membrane. Also acts downstream of some G-protein coupled receptors. Plays a role in the control of body weight (By similarity). Mediates angiotensin-2-induced ARHGEF1 phosphorylation. 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. |
| **Tissue specificity** | Expressed in blood, bone marrow and lymph node. |
| **Involvement in disease** | Note=Chromosomal aberrations involving JAK2 are found in both chronic and acute forms of eosinophilic, lymphoblastic and myeloid leukemia. Translocation t(8;9)(p22;p24) with PCM1 links the protein kinase domain of JAK2 to the major portion of PCM1. Translocation t(9;12)(p24;p13) with ETV6.<br>Defects in JAK2 are a cause of susceptibility to Budd-Chiari syndrome (BCS) [MIM:600880]. It is a syndrome caused by obstruction of hepatic venous outflow involving either the hepatic veins or the terminal segment of the inferior vena cava. Obstructions are generally caused by thrombosis and lead to hepatic congestion and ischemic necrosis. Clinical manifestations observed in the majority of patients include hepatomegaly, right upper quadrant pain and abdominal ascites. Budd-Chiari syndrome is associated with a combination of disease states including primary myeloproliferative syndromes and thrombophilia due to factor V Leiden, protein C deficiency and antithrombin III deficiency. Budd-Chiari syndrome is a rare but typical complication in patients with |

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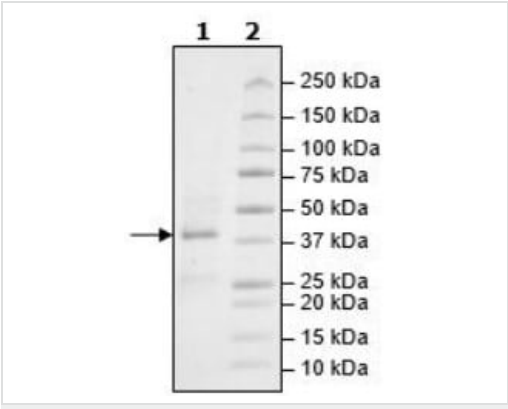
| | polycythemia vera.<br>Defects in JAK2 are a cause of polycythemia vera (PV) [MIM:263300]. A myeloproliferative disorder characterized by abnormal proliferation of all hematopoietic bone marrow elements, erythroid hyperplasia, an absolute increase in total blood volume, but also by myeloid leukocytosis, thrombocytosis and splenomegaly.<br>Defects in JAK2 gene may be a cause of essential thrombocythemia (ET) [MIM:187950]. ET is characterized by elevated platelet levels due to sustained proliferation of megakaryocytes, and frequently lead to thrombotic and haemorrhagic complications.<br>Defects in JAK2 are a cause of myelofibrosis (MYELOF) [MIM:254450]. Myelofibrosis is a disorder characterized by replacement of the bone marrow by fibrous tissue, occurring in association with a myeloproliferative disorder. Clinical manifestations may include anemia, pallor, splenomegaly, hypermetabolic state, petechiae, ecchymosis, bleeding, lymphadenopathy, hepatomegaly, portal hypertension.<br>Defects in JAK2 are a cause of acute myelogenous leukemia (AML) [MIM:601626]. AML is a malignant disease in which hematopoietic precursors are arrested in an early stage of development. |
| **Sequence similarities** | Belongs to the protein kinase superfamily. Tyr protein kinase family. JAK subfamily.<br>Contains 1 FERM domain.<br>Contains 1 protein kinase domain.<br>Contains 1 SH2 domain. |
| **Domain** | Possesses 2 protein kinase domains. The second one probably contains the catalytic domain, while the presence of slight differences suggest a different role for protein kinase 1. |
| **Post-translational modifications** | Autophosphorylated, leading to regulate its activity. Leptin promotes phosphorylation on tyrosine residues, including phosphorylation on Tyr-813. Autophosphorylation on Tyr-119 in response to EPO down-regulates its kinase activity. Autophosphorylation on Tyr-868, Tyr-966 and Tyr-972 in response to growth hormone (GH) are required for maximal kinase activity. |
| **Cellular localization** | Endomembrane system. Nucleus. |

## Images

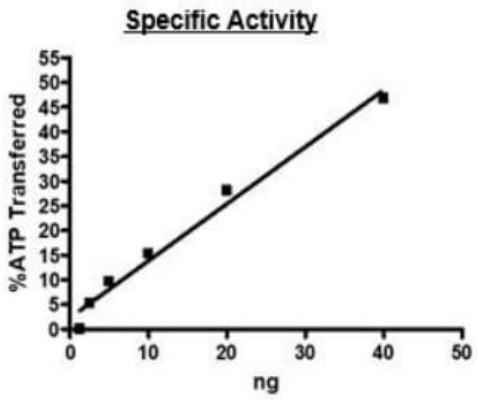



SDS-PAGE - Recombinant human JAK2 protein (ab42619)

**Lane 1:** 2µg ab42619

**Lane 2:** Protein marker

**Observed band:** 43 kDa




Functional Studies - Recombinant human JAK2 protein (ab42619)

Assay was done in Kinase buffer containing 1 mM DTT using Poly-(Glu4:Tyr) substrate (0.2 mg/ml) and 20 µM ATP. Reaction was done at 30$^{o}$C for 45 min. Amount of ATP transferred was calculated using Kinase-Glo reagent.



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