

JAK2 ELISA Kit ab253224

Recombinant SimpleStep ELISA®

4 Images

Overview

Product name	JAK2 ELISA Kit				
Detection method	Colorimetric				
Precision	Intra-assay				
	Sample	n	Mean	SD	CV%
	Extract	8			5.1%
	Inter-assay				
	Sample	n	Mean	SD	CV%
	Extract	3			4%
Sample type	Cell Lysate				
Assay type	Sandwich (quantitative)				
Sensitivity	129.3 pg/ml				
Range	390.6 pg/ml - 25000 pg/ml				
Recovery	Sample specific recovery				
	Sample type	Average %		Range	
	Cell Lysate	85		82% - 87%	
Assay time	1h 30m				
Assay duration	One step assay				
Species reactivity	Reacts with: Mouse, Rat, Human				
Product overview	JAK2 ELISA Kit (ab253224) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of JAK2 protein in cell lysate. It uses our proprietary SimpleStep ELISA® technology. Quantitate JAK2 with 129.3 pg/ml sensitivity.				

SimpleStep ELISA® technology employs capture antibodies conjugated to an affinity tag that is recognized by the monoclonal antibody used to coat our SimpleStep ELISA® plates. This

approach to sandwich ELISA allows the formation of the antibody-analyte sandwich complex in a single step, significantly reducing assay time. See the SimpleStep ELISA® protocol summary in the image section for further details. Our SimpleStep ELISA® technology provides several benefits:

- Single-wash protocol reduces assay time to 90 minutes or less
- High sensitivity, specificity and reproducibility from superior antibodies
- Fully validated in biological samples
- 96-wells plate breakable into 12 x 8 wells strips

A 384-well SimpleStep ELISA® microplate (**ab203359**) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.

## Notes

JAK2 is a non-receptor tyrosine kinase involved in processes such as cell growth, differentiation, histone modification, and mediation of innate and adaptive immunity signaling. Human, mouse and rat have high JAK2 protein sequence homology.

Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.

It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

## Platform

Pre-coated microplate (12 x 8 well strips)

## Properties

**Storage instructions** Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X JAK2 Capture Antibody	1 x 600µl
10X JAK2 Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
50X Cell Extraction Enhancer Solution (ab193971)	1 x 1ml
5X Cell Extraction Buffer PTR (ab193970)	1 x 10ml
Antibody Diluent CPI2	1 x 6ml
JAK2 Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 12ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml

Components	1 x 96 tests
TMB Development Solution	1 x 12ml

## 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.

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 polycythemia vera.

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.

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.

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.

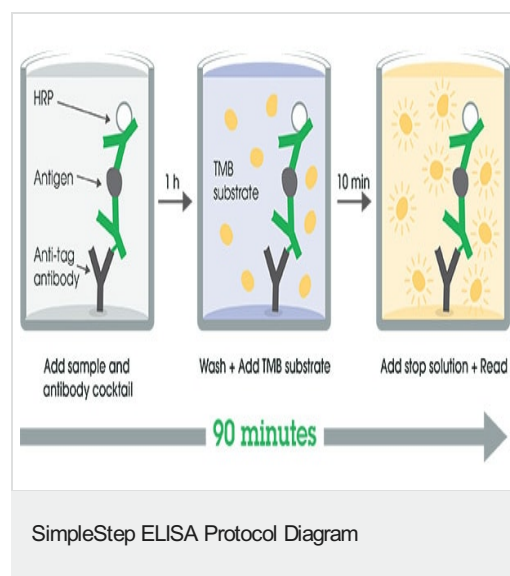
Defects in JAK2 are a cause of acute myelogenous leukemia (AML) [MIM:601626]. AML is a malignant disease in which hematopoietic precursors are arrested in an early stage of development.

## Sequence similarities

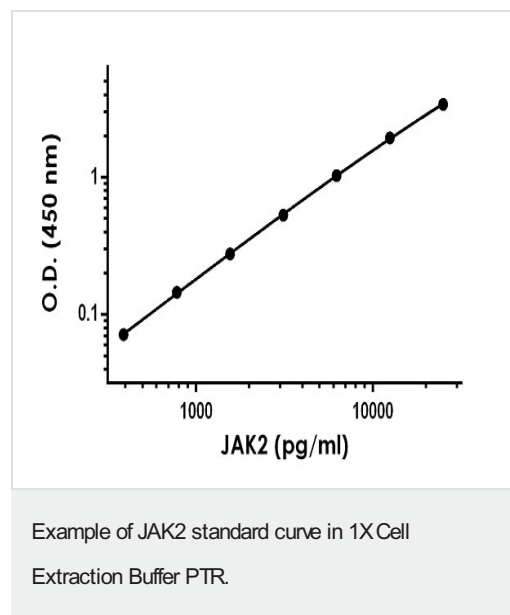
Belongs to the protein kinase superfamily. Tyr protein kinase family. JAK subfamily. Contains 1 FERM domain. Contains 1 protein kinase domain.

	Contains 1 SH2 domain.
<b>Domain</b>	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.
<b>Post-translational modifications</b>	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.
<b>Cellular localization</b>	Endomembrane system. Nucleus.

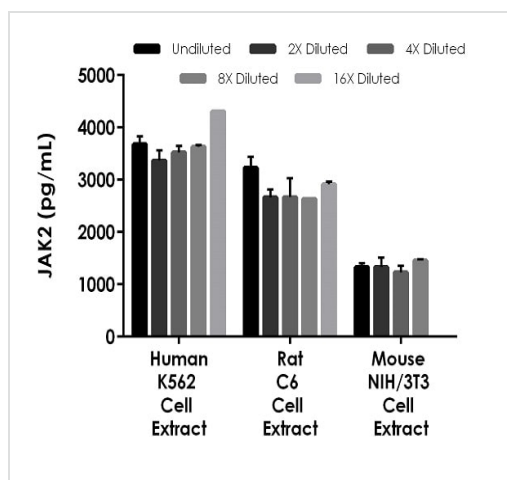
## Images



SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



The JAK2 standard curve was prepared as described in Section 10. Raw data values are shown in the table. Background-subtracted data values (mean  $\pm$  SD) are graphed.



Interpolated concentrations of native JAK2 in human K562 cell extract based on a 1,000 µg/mL extract, rat C6 cell extract based on a 1,000 µg/mL extract, and mouse NIH/3T3 based on a 500 µg/mL extract

The concentrations of JAK2 were measured in duplicate and interpolated from the JAK2 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean  $\pm$  SD, n=2). The mean JAK2 concentration was determined to be 3,701 pg/mL in K562 cell extract, 2,823 pg/mL in C6 cell extract, and 1,339 pg/mL in NIH/3T3 cell extract.

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**Success from the first experiment**  
Confirmed specificity

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Animal-free production

Sandwich ELISA - JAK2 ELISA Kit (ab253224)

To learn more about the advantages of recombinant antibodies see [here](#).

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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