

# p-JAK2 (Tyr 221): sc-101718

## BACKGROUND

JAK2 (Janus Kinase 2) belongs to the emerging family of non-receptor Janus tyrosine kinases, which regulate a spectrum of cellular functions downstream of activated cytokine receptors in the lympho-hematopoietic system. Immunological stimuli, such as interferons and cytokines, induce recruitment of Stat transcription factors to cytokine receptor-associated JAK2. JAK2 then phosphorylates proximal Stat factors, which subsequently dimerize, translocate to the nucleus and bind to CIS elements upstream of target gene promoters to regulate transcription. The canonical JAK/Stat pathway is integral to maintaining a normal immune system by stimulating proliferation, differentiation, survival and host resistance to pathogens. Altering JAK/Stat signaling to reduce cytokine induced pro-inflammatory responses represents an attractive target for anti-inflammatory therapies. Within the JAK2 kinase domain, there is a region that has considerable sequence homology to the regulatory region of the insulin receptor. Among a variety of sites, Tyrosines 1007 and 1008 are sites of trans- or autophosphorylation *in vivo* and *in vitro* kinase reactions.

## REFERENCES

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3. Feng, J., Witthuhn, B.A., Matsuda, T., Kohlhuber, F., Kerr, I.M. and Ihle, J.N. 1997. Activation of JAK2 catalytic activity requires phosphorylation of Y1007 in the kinase activation loop. *Mol. Cell Biol.* 17: 2497-2501.
4. Leonard, W.J. and O'Shea, J.J. 1998. JAKs and Stats: biological implications. *Annu. Rev. Immunol.* 16: 293-322.
5. Kotenko, S.V. and Pestka, S. 2000. JAK/Stat signal transduction pathway through the eyes of cytokine class II receptor complexes. *Oncogene* 19: 2557-2565.
6. Delgado, M. and Ganea, D. 2000. Inhibition of IFN- $\gamma$ -induced Janus kinase-1-Stat1 activation in macrophages by vasoactive intestinal peptide and pituitary adenylate cyclase-activating polypeptide. *J. Immunol.* 165: 3051-3057.
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## CHROMOSOMAL LOCATION

Genetic locus: JAK2 (human) mapping to 9p24; Jak2 (mouse) mapping to 19 C1.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## SOURCE

p-JAK2 (Tyr 221) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Tyr 221 of JAK2 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

p-JAK2 (Tyr 221) is recommended for detection of Tyr 221 phosphorylated JAK2 of mouse, rat and human origin by immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

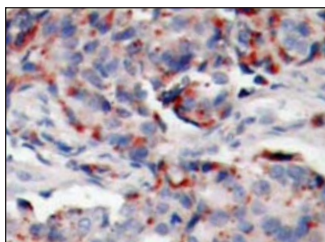
Suitable for use as control antibody for JAK2 siRNA (h): sc-39099 and JAK2 siRNA (m): sc-39100.

Molecular Weight of p-JAK2: 128 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 2) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA



p-JAK2 (Tyr 221): sc-101718. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing membrane and cytoplasmic localization.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.