Revision 1

#3774 Store at -20C

Phospho-Jak2 (Tyr221) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M	Endogenous	125	Rabbit	#O60674	3717

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Phospho-Jak2 (Tyr221) Antibody detects endogenous levels of Jak2 only when phosphorylated at Tyr221.

Species predicted to react based on 100% sequence homology:

Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Tyr221 of human Jak2 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Members of the Janus family of tyrosine kinases (Jak1, Jak2, Jak3, and Tyk2) are activated by ligands binding to a number of associated cytokine receptors (1). Upon cytokine receptor activation, Jak proteins become autophosphorylated and phosphorylate their associated receptors to provide multiple binding sites for signaling proteins. These associated signaling proteins, such as Stats (2), Shc (3), insulin receptor substrates (4), and focal adhesion kinase (FAK) (5), typically contain SH2 or other phospho-tyrosine-binding domains.
Jak2 is autophosphorylated at Tyr1007/1008 in the putative activation loop during cytokine signaling (6). Tyr221 and 570 have also been shown to be prominent sites for autophosphorylation (7,8). Mutational analysis suggests that phosphorylation at Tyr221 may increase kinase activity, while phosphorylation at Tyr570, which lies within the JH2 inhibitory domain, may contribute to inhibiting Jak2 activity. In addition, Tyr813 was identified as a site for autophosphorylation critical for the activation of Jak2 by the SH2 domain-containing protein SH2-B β (9).

Background References

1. Leonard, W.J. and O'Shea, J.J. (1998) *Annu Rev Immunol* 16, 293-322.
2. Darnell, J.E. (1997) *Science* 277, 1630-5.
3. VanderKuur, J. et al. (1995) *J Biol Chem* 270, 7587-93.
4. Argetsinger, L.S. et al. (1995) *J Biol Chem* 270, 14685-92.
5. Zhu, T. et al. (1998) *J Biol Chem* 273, 10682-9.
6. Gauzzi, M.C. et al. (1996) *J Biol Chem* 271, 20494-500.
7. Argetsinger, L.S. et al. (2004) *Mol Cell Biol* 24, 4955-67.
8. Feener, E.P. et al. (2004) *Mol Cell Biol* 24, 4968-78.
9. Kurzer, J.H. et al. (2004) *Mol Cell Biol* 24, 4557-70.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses