SANTA CRUZ BIOTECHNOLOGY, INC.

p-JAK2 (Tyr 1007/Tyr 1008): sc-21870

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 *in vitro* kinase reactions.

CHROMOSOMAL LOCATION

Genetic locus: JAK2 (human) mapping to 9p24.1; Jak2 (mouse) mapping to 19 C1.

SOURCE

p-JAK2 (Tyr 1007/Tyr 1008) is available as either goat (sc-21870) or rabbit (sc-21870-R) affinity purified polyclonal antibody raised against a short amino acid sequence containing Tyr 1007 and Tyr 1008 phosphorylated JAK2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-21870 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-JAK2 (Tyr 1007/Tyr 1008) is recommended for detection of Tyr 1007 and Tyr 1008 of dually phosphorylated JAK2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). p-JAK2 (Tyr 1007/Tyr 1008) is also recommended for detection of correspondingly phosphorylated JAK2 in additional species, including canine, bovine and porcine.

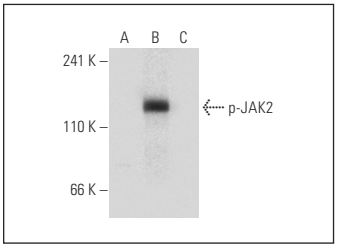
Suitable for use as control antibody for JAK2 siRNA (h): sc-39099, JAK2 siRNA (m): sc-39100, JAK2 shRNA Plasmid (h): sc-39099-SH, JAK2 shRNA Plasmid (m): sc-39100-SH, JAK2 shRNA (h) Lentiviral Particles: sc-39099-V and JAK2 shRNA (m) Lentiviral Particles: sc-39100-V.

Molecular Weight of p-JAK2: 128 kDa.

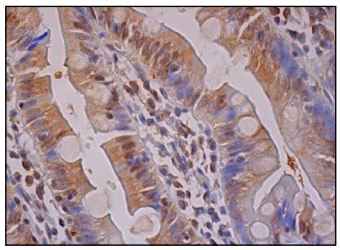
STORAGE

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

DATA



Western blot analysis of JAK2 phosphorylation in untreated (**A**), mouse LIF (sc-4989) treated (**B**) and LIF and lambda protein phosphatase (sc-200312A) treated (**C**) 3T3-L1 whole cell lysates. Antibody tested: p-JAK2 (Tyr 1007/Tyr 1008)-R: sc-21870-R (**A**,**B**,**C**).



p-JAK2 (Tyr 1007/ Tyr 1008)-R: sc-21870-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing nuclear and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Giron-Michel, J., et al. 2003. Detection of a functional hybrid receptor γ/GM-CSFRβ in human hematopoietic CD34+ cells. J. Exp. Med. 197: 763-775.
2. Gorantla, S.P., et al. 2010. Oncogenic JAK2V617F requires an intact SH2-like domain for constitutive activation and induction of a myeloproliferative disease in mice. Blood 116: 4600-4611.
3. Helmer, R.A., et al. 2010. Prolactin-induced JAK2 phosphorylation of RUSH: a key element in JAK/RUSH signaling. Mol. Cell. Endocrinol. 325: 143-149.
4. Tang, H., et al. 2011. Changes in growth hormone (GH), GH receptor, and GH signal transduction in hippocampus of congenital hypothyroid rats. J. Neurosci. Res. 89: 248-255.
5. Nakamura, S., et al. 2011. Down-regulation of thanatos-associated protein 11 by Bcr-Abl promotes CML cell proliferation through c-Myc expression. Int. J. Cancer 30:1046-1059.
6. Loverre, A., et al. 2011. IL-17 expression by tubular epithelial cells in renal transplant recipients with acute antibody-mediated rejection. Am. J. Transplant. 11: 1248-1259.
7. Helmer, R.A., et al. 2011. Prolactin induces JAK2 phosphorylation of RUSHY195. Mol. Cell. Endocrinol. 338: 79-83.
8. Nakamura, S., et al. 2012. Down-regulation of Thanatos-associated protein 11 by Bcr-Abl promotes CML cell proliferation through c-Myc expression. Int. J. Cancer 130: 1046-1059.
9. da Silva, S.V., et al. 2013. Increased leptin response and inhibition of apoptosis in thymocytes of young rats offspring from protein deprived dams during lactation. PLoS ONE 8: e64220.

RESEARCH USE

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