SANTA CRUZ BIOTECHNOLOGY, INC.

p-JAK1 (Tyr 1022): sc-101716

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

JAK1 (Janus kinase 1) belongs to the family of non-receptor Janus tyrosine kinases, which regulate a spectrum of cellular functions downstream of activated cytokine receptors in the lymphohematopoietic system. Immunological stimuli, such as interferons and cytokines, induce recruitment of Stat transcription factors to cytokine receptor-associated JAK1. JAK1 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. Upon ligand binding, JAK1 undergoes tyrosine phosphorylation and catalytic activation in an interdependent manner. Phosphorylation of tyrosine residues at position 1022 and 1023 is believed to function in the activation of catalytic events. 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.

REFERENCES

1. Gauzzi, M.C., et al. 1996. Interferon-α-dependent activation of Tyk2 requires phosphorylation of positive regulatory tyrosines by another kinase. J. Biol. Chem. 271: 20494-20500.
2. Heim, M.H. 1996. The JAK/Stat pathway: specific signal transduction from the cell membrane to the nucleus. Eur. J. Clin. Invest. 26: 1-12.

CHROMOSOMAL LOCATION

Genetic locus: JAK1 (human) mapping to 1p31.3; Jak1 (mouse) mapping to 4 C6.

SOURCE

p-JAK1 (Tyr 1022) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Tyr 1022 phosphorylated JAK1 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-JAK1 (Tyr 1022) is recommended for detection of Tyr 1022 phosphorylated JAK1 of human origin (also designated as Tyr 1034) and correspondingly phosphorylated JAK1 of mouse and rat 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

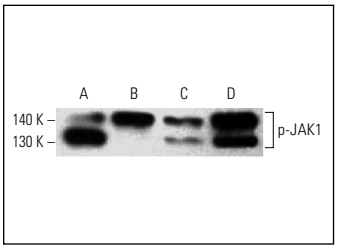
Suitable for use as control antibody for JAK1 siRNA (h): sc-35719, JAK1 siRNA (m): sc-35720, JAK1 shRNA Plasmid (h): sc-35719-SH, JAK1 shRNA Plasmid (m): sc-35720-SH, JAK1 shRNA (h) Lentiviral Particles: sc-35719-V and JAK1 shRNA (m) Lentiviral Particles: sc-35720-V.

Molecular Weight of p-JAK1: 130 kDa.

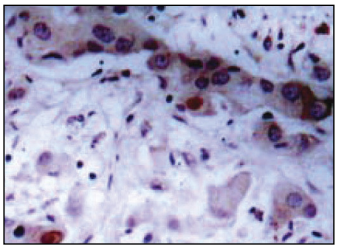
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



p-JAK1 (Tyr 1022): sc-101716. Western blot analysis of phosphorylated JAK1 expression in cancerous thyroid tissue extract (**A**,**D**).



p-JAK1 (Tyr 1022): sc-101716. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue showing membrane and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Díaz-Sanjuán T., et al. 2009. Interferon α increases metalloproteinase-13 gene expression through a polyomavirus enhancer activator 3-dependent pathway in hepatic stellate cells. J. Hepatol. 50: 128-139.
2. Zhou, J., et al. 2010. Inhibition of the JAK-STAT3 pathway by andrographolide enhances chemosensitivity of cancer cells to doxorubicin. Biochem. Pharmacol. 79: 1242-1250.
3. Renga, B., et al. 2012. The HIV matrix protein p17 subverts nuclear receptors expression and induces a STAT1-dependent proinflammatory phenotype in monocytes. PLoS ONE 4: e35924.
4. Mathieu, M.G., et al. 2014. The helicase HAGE prevents interferon-α-induced PML expression in ABCB5+ malignant melanoma-initiating cells by promoting the expression of SOCS1. Cell Death Dis. 5: e1061.

STORAGE

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

RESEARCH USE

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