SANTA CRUZ BIOTECHNOLOGY, INC.

JAK3 (B-12): sc-6932



BACKGROUND

JAK3 (Janus kinase 3) belongs to the 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 JAK3. JAK3 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, 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.

CHROMOSOMAL LOCATION

Genetic locus: JAK3 (human) mapping to 19p13.11; Jak3 (mouse) mapping to 8 B3.3.

SOURCE

JAK3 (B-12) is a mouse monoclonal antibody specific for an epitope between amino acids 1095-1124 at the C-terminus of JAK3 of human origin.

PRODUCT

Each vial contains 200 μg IgA kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

JAK3 (B-12) is available conjugated to agarose (sc-6932 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-6932 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-6932 PE), fluorescein (sc-6932 FITC) or Alexa Fluor[®] 488 (sc-6932 AF488) or Alexa Fluor[®] 647 (sc-6932 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-6932 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

JAK3 (B-12) is recommended for detection of JAK3 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).

Suitable for use as control antibody for JAK3 siRNA (h): sc-29379, JAK3 siRNA (m): sc-35721, JAK3 shRNA Plasmid (h): sc-29379-SH, JAK3 shRNA Plasmid (m): sc-35721-SH, JAK3 shRNA (h) Lentiviral Particles: sc-29379-V and JAK3 shRNA (m) Lentiviral Particles: sc-35721-V.

Molecular Weight of JAK3: 116 kDa.

Positive Controls: HuT 78 whole cell lysate: sc-2208, MOLT-4 cell lysate: sc-2233 or HeLa whole cell lysate: sc-2200.

STORAGE

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

DATA



JAK3 (B-12): sc-6932. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human lung tumor showing nuclear localization.

SELECT PRODUCT CITATIONS

- 1. Irie-Sasaki, J., et al. 2001. CD45 is a JAK phosphatase and negatively regulates cytokine receptor signalling. Nature 409: 349-354.
- 2. Choudhary, C., et al. 2007. Activation mechanisms of Stat5 by oncogenic Flt3-ITD. Blood 110: 370-374.
- Guerini, V., et al. 2008. The histone deacetylase inhibitor ITF2357 selectively targets cells bearing mutated JAK2(V617F). Leukemia 22: 740-747.
- Bixler, G.V., et al. 2011. Chronic Insulin treatment of diabetes does not fully normalize alterations in the retinal transcriptome. BMC Med. Genomics 4: 40.
- Davoodi-Semiromi, A., et al. 2012. The tyrphostin agent AG490 prevents and reverses type 1 diabetes in NOD mice. PLoS ONE 7: e36079.
- Chetcuti, A., et al. 2014. Can archival tissue reveal answers to modern research questions? Computer-aided histological assessment of neuroblastoma tumours collected over 60 years. Microarrays 3: 72-88.
- 7. Ehrentraut, S., et al. 2016. Th17 cytokine differentiation and loss of plasticity after SOCS1 inactivation in a cutaneous T-cell lymphoma. Oncotarget 7: 34201-34216.
- Chen, W., et al. 2018. ROCK2, but not ROCK1 interacts with phosphorylated STAT3 and co-occupies TH17/TFH gene promoters in TH17-activated human T cells. Sci. Rep. 8: 16636.
- Kim, B.H., et al. 2020. Tubulosine selectively inhibits JAK3 signalling by binding to the ATP-binding site of the kinase of JAK3. J. Cell. Mol. Med. 24: 7427-7438.
- Morotti, M., et al. 2024. PGE2 inhibits TIL expansion by disrupting IL-2 signalling and mitochondrial function. Nature 629: 426-434.

RESEARCH USE

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