SANTA CRUZ BIOTECHNOLOGY, INC.

JAK3 (A1-14-16): sc-56921

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

REFERENCES

1. 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.
2. Decker, T., et al. 1997. JAKs, Stats and the immune system. Immunobiology 198: 99-111.
3. Leonard, W.J., et al. 1998. JAKs and Stats: biological implications. Annu. Rev. Immunol. 16: 293-322.
4. Kirken, R.A., et al. 2000. Functional uncoupling of the Janus kinase 3/Stat5 pathway in malignant growth of human T cell leukemia virus type 1-transformed human T cells. J. Immunol. 165: 5097-5104.
5. Negoro, S., et al. 2000. Activation of JAK/Stat pathway transduces cytoprotective signal in rat acute myocardial infarction. Cardiovasc. Res. 47: 797-805.
6. Bianchi, M., et al. 2000. Inhibition of IL-2-induced JAK/Stat signaling by glucocorticoids. Proc. Natl. Acad. Sci. USA 97: 9573-9578.
7. Brown, G.R., et al. 2000. Naphthyl ketones: a new class of Janus kinase 3 inhibitors. Bioorg. Med. Chem. Lett. 10: 575-579.

CHROMOSOMAL LOCATION

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

SOURCE

JAK3 (A1-14-16) is a mouse monoclonal antibody raised against amino acids 1076-1100 of JAK3 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

JAK3 (A1-14-16) 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with JAK 1, JAK 2 or Tyk 2.

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

SELECT PRODUCT CITATIONS

1. Dien Bard, J., et al. 2009. IL-21 contributes to JAK3/Stat3 activation and promotes cell growth in ALK-positive anaplastic large cell lymphoma. Am. J. Pathol. 175: 825-834.
2. Patra, A.K., et al. 2013. An alternative NFAT-activation pathway mediated by IL-7 is critical for early thymocyte development. Nat. Immunol. 14: 127-135.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CONJUGATES

See **JAK3 (B-12): sc-6932** for JAK3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.