

# JAK1 (Q-19): sc-295



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 lympho-hematopoietic 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

JAK1 (Q-19) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of JAK1 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-295 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

JAK1 (Q-19) is recommended for detection of JAK1 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

JAK1 (Q-19) is also recommended for detection of JAK1 in additional species, including equine, canine, bovine and porcine.

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 JAK1: 130 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

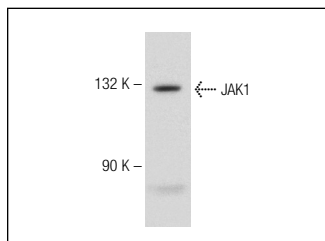
## RESEARCH USE

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

## STORAGE

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

## DATA



JAK1 (Q-19): sc-295. Western blot analysis of JAK1 expression in Jurkat whole cell lysate.

## SELECT PRODUCT CITATIONS

- Zhang, Q., et al. 1996. Activation of JAK/Stat proteins involved in signal transduction pathway mediated by receptor for interleukin 2 in malignant T lymphocytes derived from cutaneous anaplastic large T-cell lymphoma and Sezary syndrome. *Proc. Natl. Acad. Sci. USA* 93: 9148-9153.
- Sengupta, T., et al. 1996. Inhibition of cytokines and JAK/Stat activation by distinct signaling pathways. *Proc. Natl. Acad. Sci. USA* 93: 9499-9504.
- Gotoh, B., et al. 2003. The STAT2 activation process is a crucial target of Sendai virus C protein for the blockade of  $\alpha$  interferon signaling. *J. Virol.* 77: 3360-3370.
- Tanaka, Y., et al. 2005. Impaired IL-4 and c-Maf expression and enhanced Th1-cell development in Vav1-deficient mice. *Blood* 106: 1286-1295.
- Nelson, E.A., et al. 2008. Nifuroxazide inhibits survival of multiple myeloma cells by directly inhibiting STAT3. *Blood* 112: 5095-5102.
- Hou, L.F., et al. 2009. SM934, a water-soluble derivative of artemisinin, exerts immunosuppressive functions *in vitro* and *in vivo*. *Int. Immunopharmacol.* 9: 1509-1517.
- Nevis, K.R., et al. 2009. Origin licensing and p53 status regulate Cdk2 activity during G<sub>1</sub>. *Cell Cycle* 8: 1952-1963.
- Rose, T., et al. 2010. Interleukin-7 compartmentalizes its receptor signaling complex to initiate CD4 T lymphocyte response. *J. Biol. Chem.* 285: 14898-14908.
- Macha, M.A., et al. 2011. Guggulsterone (GS) inhibits smokeless tobacco and nicotine-induced NF $\kappa$ B and STAT3 pathways in head and neck cancer cells. *Carcinogenesis* 32: 368-380.

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