

# JAK1 (HR-785): sc-277

## 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 (HR-785) is available as either rabbit (sc-277) or goat (sc-277-G) affinity purified polyclonal antibody raised against a peptide mapping within an internal region of JAK1 of mouse 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-277 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

JAK1 (HR-785) 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), 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).

JAK1 (HR-785) 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.

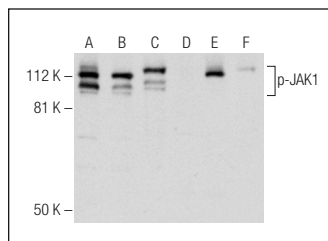
## RESEARCH USE

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

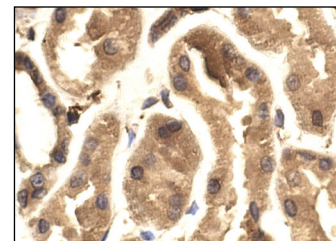
## STORAGE

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

## DATA



Western blot analysis of JAK1 phosphorylation in untreated (A, D), mLIF treated (B, E) and mLIF and lambda protein phosphatase (sc-200312A) treated (C, F) 3T3-L1 whole cell lysates. Antibodies tested include p-JAK1 (Tyr 1022/Tyr 1023)-R: sc-16773-R (A, B, C) and JAK1 (HR-785): sc-277 (D, E, F).



JAK1 (HR-785): sc-277. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules.

## SELECT PRODUCT CITATIONS

- Rodig, S.J., et al. 1998. Disruption of the Jak1 gene demonstrates obligatory and nonredundant roles of the Jaks in cytokine-induced biologic responses. *Cell* 93: 373-383.
- Migone, T., et al. 1998. Recruitment of SH2-containing protein tyrosine phosphatase SHP-1 to the interleukin 2 receptor; loss of SHP-1 expression in human T-lymphotropic virus type I-transformed T cells. *Proc. Natl. Acad. Sci. USA* 95: 3845-3850.
- Lundkvist, G.B., et al. 1998. Expression of an oscillating interferon-γ receptor in the suprachiasmatic nuclei. *Neuroreport* 9: 1059-1063.
- Gordon, G.M., et al. 2010. Transforming JAK1 mutations exhibit differential signalling, FERM domain requirements and growth responses to interferon-γ. *Biochem. J.* 432: 255-265.
- Mutocheluh, M., et al. 2011. Kaposi's sarcoma-associated herpesvirus viral interferon regulatory factor-2 inhibits type 1 interferon signalling by targeting interferon-stimulated gene factor-3. *J. Gen. Virol.* 92: 2394-2398.
- Zenatti, P.P., et al. 2011. Oncogenic IL7R gain-of-function mutations in childhood T-cell acute lymphoblastic leukemia. *Nat. Genet.* 43: 932-939.
- Prchal-Murphy, M., et al. 2012. TYK2 kinase activity is required for functional type I interferon responses *in vivo*. *PLoS ONE* 7: e39141.



Try **JAK1 (B-3): sc-376996** or **JAK1 (A-9): sc-1677**, our highly recommended monoclonal alternatives to JAK1 (HR-785). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **JAK1 (B-3): sc-376996**.