SANTA CRUZ BIOTECHNOLOGY, INC.

JAK1 (A-9): sc-1677

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 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 (A-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 785-815 within an internal region of JAK1 of mouse origin.

PRODUCT

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

JAK1 (A-9) is available conjugated to agarose (sc-1677 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-1677 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-1677 PE), fluorescein (sc-1677 FITC), Alexa Fluor® 488 (sc-1677 AF488), Alexa Fluor® 546 (sc-1677 AF546), Alexa Fluor® 594 (sc-1677 AF594) or Alexa Fluor® 647 (sc-1677 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-1677 AF680) or Alexa Fluor® 790 (sc-1677 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-1677 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

JAK1 (A-9) 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).

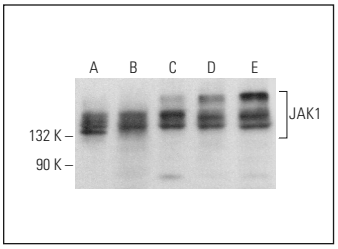
JAK1 (A-9) is also recommended for detection of JAK1 in additional species, including equine, canine, bovine and porcine.

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.

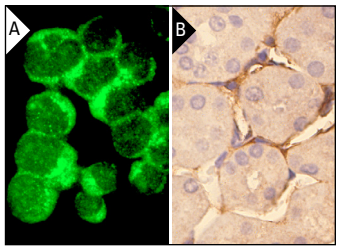
Molecular Weight of JAK1: 130 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, C6 whole cell lysate: sc-364373 or A-431 whole cell lysate: sc-2201.

DATA



JAK1 (A-9): sc-1677. Western blot analysis of JAK1 expression in NIH/3T3 (**A**), C6 (**B**), A-431 (**C**), MCF7 (**D**) and HeLa (**E**) whole cell lysates.



JAK1 (A-9): sc-1677. Immunofluorescence staining of methanol-fixed Jurkat cells showing membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse kidney tissue showing membrane and cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Kulms, D., et al. 2001. Ultraviolet radiation inhibits interleukin-2-induced tyrosine phosphorylation and the activation of Stat5 in T lymphocytes. J. Biol. Chem. 276: 12849-12855.
2. Mejlvang, J., et al. 2018. Starvation induces rapid degradation of selective autophagy receptors by endosomal microautophagy. J. Cell Biol. 217: 3640-3655.
3. Guo, T., et al. 2019. ADP-ribosyltransferase PARP11 modulates the interferon antiviral response by mono-ADP-ribosylating the ubiquitin E3 ligase β-TrCP. Nat. Microbiol. 4: 1872-1884.
4. Zuo, Y., et al. 2020. Regulation of the linear ubiquitination of STAT1 controls antiviral interferon signaling. Nat. Commun. 11: 1146.

RESEARCH USE

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