SANTA CRUZ BIOTECHNOLOGY, INC.

p-JAK3 (Tyr 980): sc-16567

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Several members of the Janus family of protein tyrosine kinases have been described. These include Tyk 2, JAK1 and JAK2, each of which is involved in coupling ligand binding of cytokine receptors to tyrosine phosphorylation. Subsequent to activation, these kinases function to activate various members of the Stat family of transcription factors by phosphorylation on critical tyrosine regulatory sites. The most recent member of the Janus family of transcription factors, JAK3 (also designated L-JAK), is activated in response to IL-3 and IL-4 in T cells and myeloid cells. JAK3 activation requires the serine-rich membrane-proximal region of the IL-2 receptor β-chain, but does not require the acidic domain that is required for association and activation of Src family kinases. Expression of JAK3 is restricted to NK and T cells, whereas the other members of the Janus family of tyrosine protein kinases are much more widely expressed. JAK3 is autophosphorylated on multiple sites including Tyrosines 980 and 981. However, optimal phosphorylation of JAK3 on other sites is dependent on Tyrosine 980 phosphorylation. Tyrosine 980 positively regulates JAK3 kinase activity whereas Tyrosine 981 negatively regulates JAK3 kinase activity.

CHROMOSOMAL LOCATION

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

SOURCE

p-JAK3 (Tyr 980) is available as either goat (sc-16567) or rabbit (sc-16567-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing Tyr 980 phosphorylated JAK3 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-16567 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-JAK3 (Tyr 980) is recommended for detection of Tyr 980 phosphorylated 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-JAK3 (Tyr 980) is also recommended for detection of correspondingly phosphorylated JAK3 in additional species, including equine, canine, porcine and avian.

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.

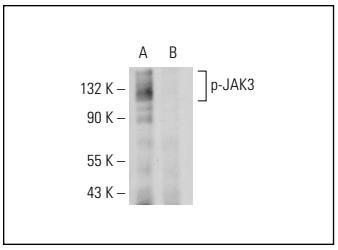
Molecular Weight of JAK3: 106 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

STORAGE

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

DATA



p-JAK3 (Tyr 980)-R: sc-16567-R. Western blot analysis of JAK3 phosphorylation in untreated (**A**) and lambda protein phosphatase (sc-200312A) treated (**B**) Hep G2 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhang, H., et al. 2004. Adenosine acts through A2 receptors to inhibit IL-2-induced tyrosine phosphorylation of STAT5 in T lymphocytes: role of cyclic adenosine 3',5'-monophosphate and phosphatases. J. Immunol. 173: 932-944.
2. Bandyopadhyay, G., et al. 2004. Chlorogenic acid inhibits Bcr-Abl tyrosine kinase and triggers p38 mitogen-activated protein kinase-dependent apoptosis in chronic myelogenous leukemic cells. Blood 104: 2514-2522.
3. Qiao, X., et al. 2006. Human immunodeficiency virus 1 Nef suppresses CD40-dependent immunoglobulin class switching in bystander B cells. Nat. Immunol. 7: 302-310.
4. Koon, H., et al. 2006. Substance P stimulates cyclooxygenase-2 and prostaglandin E2 expression through JAK-STAT activation in human colonic epithelial cells. J. Immunol. 176: 5050-5059.
5. Qiu, L., et al. 2006. Autocrine release of interleukin-9 promotes JAK3-dependent survival of ALK+ anaplastic large-cell lymphoma cells. Blood 108: 2407-2415.
6. Ahmed-Choudhury, J., et al. 2006. CD40 mediated human cholangiocyte apoptosis requires JAK2 dependent activation of Stat3 in addition to activation of JNK1/2 and ERK 1/2. Cell. Signal. 18: 456-468.
7. Eriksen, K.W., et al. 2009. The combination of IL-21 and IFN-α boosts STAT3 activation, cytotoxicity and experimental tumor therapy. Mol. Immunol. 46: 812-820.
8. Kim, B.H., et al. 2010. MS-1020 is a novel small molecule that selectively inhibits JAK3 activity. Br. J. Haematol. 148: 132-143.
9. Zenatti, P.P., et al. 2011. Oncogenic IL7R gain-of-function mutations in childhood T-cell acute lymphoblastic leukemia. Nat. Genet. 43: 932-939.

RESEARCH USE

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