SANTA CRUZ BIOTECHNOLOGY, INC.

IL-3Rβ (K-19): sc-677

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Interleukin-3, or IL-3, is a pleiotropic cytokine that is primarily secreted by activated T lymphocytes and stimulates the proliferation and differentiation of hematopoietic cells. IL-3 exerts its biological effects through a receptor which consists of a ligand-specific α subunit (IL-3Rα) and a signal transducing β subunit (IL-3Rβ) common to the IL-3/IL-5/GM-CSF receptors. The α subunits are low-affinity ligand-binding proteins while the β subunits do not themselves bind ligand, but are required for high affinity binding by the α subunits. The mouse IL-3 receptor has two distinct β subunits, one that functions only in IL-3-mediated cell signaling and a second that is shared with IL-5 and GM-CSF. The murine β subunits are 91% homologous at the amino acid level but only 56% homologous to the human β subunit. The carboxy-terminus of the β subunit has been shown to be necessary for activation of the MAP kinase signaling pathway. Although the IL-3 receptor has no intrinsic kinase activity, stimulation with IL-3 leads to tyrosine phosphorylation of the JAK/Tyk 2 family member, JAK2, which in turn activates and causes nuclear translocation of Stat5a and Stat5b.

REFERENCES

1. Hayashida, K., et al. 1990. Molecular cloning of a second subunit of the receptor for human granulocyte-macrophage colony-stimulating factor (GM-CSF): reconstitution of a high-affinity GM-CSF receptor. Proc. Natl. Acad. Sci. USA 87: 9655-9659.
2. Tavernier, J., et al. 1992. A human high-affinity interleukin-5 receptor (IL-5R) is composed of an IL-5 specific chain and a β chain shared with the receptor for GM-CSF. Cell 66: 1175-1184.
3. Hara, T., et al. 1992. Two distinct functional receptors for mouse interleukin-3. EMBO J. 11: 1875-1884.

CHROMOSOMAL LOCATION

Genetic locus: CSF2RB (human) mapping to 22q12.3; Csf2rb2 (mouse) mapping to 15 E1.

SOURCE

IL-3Rβ (K-19) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of IL-3Rβ 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-677 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

RESEARCH USE

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

APPLICATIONS

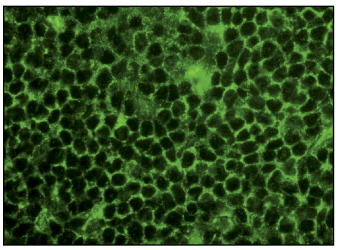
IL-3Rβ (K-19) is recommended for detection of the unique mouse IL-3Rβ chain and the β chain common to IL-3R, IL-5R and GM-CSFR of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of 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).

Positive Controls: mouse lymph node extract: sc-364243.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



IL-3Rβ (K-19): sc-677. Immunofluorescence staining of normal mouse lymph node frozen section showing membrane staining.

SELECT PRODUCT CITATIONS

1. Craddock, B.L., et al. 2001. Phosphoinositide 3-kinase-dependent regulation of interleukin-3-induced proliferation: involvement of mitogen-activated protein kinases, SHP2 and Gab2. J. Biol. Chem. 276: 24274-24283.
2. Paling, N.R. and Welham, M.J. 2002. Role of the protein tyrosine phosphatase SHP-1 (Src homology phosphatase-1) in the regulation of interleukin-3-induced survival, proliferation and signalling. Biochem. J. 368: 885-894.
3. Wheadon, H., et al. 2003. Regulation of interleukin-3-induced substrate phosphorylation and cell survival by SHP-2 (Src-homology protein tyrosine phosphatase 2). Biochem. J. 376: 147-157.
4. Huang, H.M., et al. 2005. Simultaneous activation of JAK1 and JAK2 confers IL-3 independent growth on Ba/F3 pro-B cells. J. Cell. Biochem. 96: 361-375.