

IL-4 (NYRmIL-4): sc-73318

BACKGROUND

Interleukin-4 (IL-4), also designated B cell stimulatory factor-1, is a glycosylated cytokine secreted by activated T lymphocytes, basophils and mast cells. The secreted IL-4 protein promotes the growth and differentiation of cells that participate in immune defense by favoring such events as the expansion of the Th2 lineage relative to Th1 cells. These T helper cell subsets are defined by their pattern of cytokine secretion: Th1 cells secrete IL-2, TNF β and IFN- γ , while Th2 cells secrete IL-4, IL-5 and IL-10. Another key immunological function of IL-4 is to induce immunoglobulin class switching. IL-4 has been shown to induce the production of IgE and enhance IgG₄ secretion by B cells, but suppress the production of IgM, IgA, IgG₁, IgG₂ and IgG₃. It has been determined that Stat6 is rapidly tyrosine phosphorylated following stimulation of IL-3 or IL-4, but is not detectably phosphorylated following stimulation with IL-2, IL-12 or erythropoietin.

REFERENCES

1. Yokota, T., et al. 1986. Isolation and characterization of a human interleukin cDNA clone, homologous to mouse B cell stimulatory factor 1, that expresses B cell- and T cell-stimulating activities. Proc. Natl. Acad. Sci. USA 83: 5894-5898.
2. Grabstein, K., et al. 1986. Purification to homogeneity of B cell stimulating factor. A molecule that stimulates proliferation of multiple lymphokine-dependent cell lines. J. Exp. Med. 163: 1405-1414.
3. Kamogawa, Y., et al. 1993. The relationship of IL-4- and IFN- γ -producing T cells studied by lineage ablation of IL-4-producing cells. Cell 75: 985-995.
4. Kopf, M., et al. 1993. Disruption of the murine IL-4 gene blocks Th2 cytokine responses. Nature 362: 245-248.
5. Kotowicz, K., et al. 1993. Human immunoglobulin class and IgG subclass regulation: dual action of interleukin-4. Eur. J. Immunol. 23: 2250-2256.
6. Hou, J., et al. 1994. An interleukin-4-induced transcription factor: IL-4 Stat. Science 265: 1701-1706.
7. Izuhara, K., et al. 1996. Signal transduction pathway of interleukin-4 and interleukin-13 in human B cells derived from X-linked severe combined immunodeficiency patients. J. Biol. Chem. 271: 619-622.

CHROMOSOMAL LOCATION

Genetic locus: Il4 (mouse) mapping to 11 B1.3.

SOURCE

IL-4 (NYRmIL-4) is a rat monoclonal antibody raised against recombinant IL-4 of mouse origin.

PRODUCT

Each vial contains 100 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

IL-4 (NYRmIL-4) is recommended for detection of IL-4 of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), intracellular flow cytometry (1 μ g per 1 x 10⁶ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IL-4 siRNA (m): sc-39624, IL-4 shRNA Plasmid (m): sc-39624-SH and IL-4 shRNA (m) Lentiviral Particles: sc-39624-V.

Molecular Weight of IL-4: 18 kDa.

SELECT PRODUCT CITATIONS

1. Hao, Y., et al. 2012. *Pseudomonas aeruginosa* pyocyanin causes airway goblet cell hyperplasia and metaplasia and mucus hypersecretion by inactivating the transcriptional factor FoxA2. Cell. Microbiol. 14: 401-415.
2. Seo, J.W., et al. 2013. 1'-Acetoxychavicol acetate isolated from *Alpinia galanga* ameliorates ovalbumin-induced asthma in mice. PLoS ONE 8: e56447.
3. Hao, Y., et al. 2014. *Mycoplasma pneumoniae* modulates STAT3-STAT6/EGFR-FOXA2 signaling to induce overexpression of airway mucins. Infect. Immun. 82: 5246-5255.
4. Bang, M.A., et al. 2015. *Bacillus subtilis* KCTC 11782BP-produced alginate oligosaccharide effectively suppresses asthma via T-helper cell type 2-related cytokines. PLoS ONE 10: e0117524.
5. Seo, J.H., et al. 2016. *Erythronium japonicum* attenuates histopathological lung abnormalities in a mouse model of ovalbumin-induced asthma. Int. J. Mol. Med. 37: 1221-1228.

RESEARCH USE

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

PROTOCOLS

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