

IL-4 (11B11): sc-32242

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.
8. Helbig, G., et al. 2006. The achievement of complete molecular remission after autologous stem transplantation for T cell lymphoma with associated hypereosinophilia, rare aberration t(6;11) and elevated IL-4 and IgE. *Haematologica* 91: ECR42.
9. Perkins, C., et al. 2006. IL-4 induces IL-13-independent allergic airway inflammation. *J. Allergy Clin. Immunol.* 118: 410-419.

CHROMOSOMAL LOCATION

Genetic locus: IL4 (mouse) mapping to 11 B1.3.

SOURCE

IL-4 (11B11) is a rat monoclonal antibody raised against partially purified IL-4 of mouse origin.

PRODUCT

Each vial contains 200 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for neutralization, sc-32242 L, 200 μ g/0.1 ml.

IL-4 (11B11) is available conjugated to either phycoerythrin (sc-32242 PE) or fluorescein (sc-32242 FITC), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

IL-4 (11B11) 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) and flow cytometry (1 μ g per 1 x 10⁶ cells).

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. Li, G., et al. 2013. Lyn mitigates mouse airway remodeling by downregulating the TGF- β 3 isoform in house dust mite models. *J. Immunol.* 191: 5359-5370.
2. Matsui, K., et al. 2015. Langerhans cell-like dendritic cells stimulated with an adjuvant direct the development of Th1 and Th2 cells *in vivo*. *Clin. Exp. Immunol.* 182: 101-107.
3. Kim, D.R., et al. 2017. Protective effect of *Salvia miltiorrhiza* Bunge on 5-fluorouracil-induced oral mucositis. *Int. J. Mol. Med.* 40: 39-46.
4. Chai, R., et al. 2017. The significance of the levels of IL-4, IL-31 and TLSP in patients with asthma and/or rhinitis. *Immunotherapy* 9: 331-337.
5. Meng, Y., et al. 2019. Paeonol inhibits the development of 1-chloro-2,4-dinitrobenzene-induced atopic dermatitis via mast and T cells in BALB/c mice. *Mol. Med. Rep.* 19: 3217-3229.
6. Qin, S., et al. 2020. SHIP-1 regulates phagocytosis and M2 polarization through the PI3K/Akt-Stat5-Trib1 circuit in *Pseudomonas aeruginosa* infection. *Front. Immunol.* 11: 307.

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.

PROTOCOLS

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