

## IL-4 (CC311): sc-101845

### 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 $\beta$  and IFN- $\gamma$ , 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 IgG<sub>4</sub> secretion by B cells, but suppress the production of IgM, IgA, IgG<sub>1</sub>, IgG<sub>2</sub> and IgG<sub>3</sub>. 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- $\gamma$ -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 cell transplantation for T cell lymphoma with associated hypereosinophilia, rare aberration t(6;11) and elevated IL-4 and IgE. *Haematologica* 91: ECR42.

### SOURCE

IL-4 (CC311) is a mouse monoclonal antibody raised against recombinant IL-4 of bovine origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IL-4 (CC311) is available conjugated to either phycoerythrin (sc-101845 PE) or fluorescein (sc-101845 FITC), 200  $\mu$ g/ml, for IF, IHC(P) and FCM.

### APPLICATIONS

IL-4 (CC311) is recommended for detection of IL-4 of ovine and bovine origin by flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of IL-4: 18 kDa.

### SELECT PRODUCT CITATIONS

1. Buchanan, R.M., et al. 2013. Oral antigen exposure in extreme early life in lambs influences the magnitude of the immune response which can be generated in later life. *BMC Vet. Res.* 9: 160.

### 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](http://www.scbt.com) for detailed protocols and support products.