

IL-3/IL-5/GM-CSFR β (8E4): sc-21766

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 not only supports growth of both pluripotent stem cells and the more differentiated committed progenitors, but it also stimulates the functional activity of some fully differentiated cells. IL-3 has also been shown to protect mast cells from undergoing apoptosis. IL-3 exerts its biological effects through a receptor which consists of a ligand-specific α subunit and a signal transducing β subunit common to the IL-3/IL-5/GM-CSF receptors. 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

- 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.
- Park, L.S., et al. 1992. Cloning of the low-affinity murine granulocyte-macrophage colony-stimulating factor receptor and reconstitution of a high-affinity receptor complex. *Proc. Natl. Acad. Sci. USA* 89: 4295-4299.
- Miyajima, A., et al. 1992. Cytokine receptors and signal transduction. *Annu. Rev. Immunol.* 10: 295-331.
- 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.
- Hara, T., et al. 1992. Two distinct functional receptors for mouse interleukin-3. *EMBO J.* 11: 1875-1884.
- Sakamaki, K., et al. 1992. Critical cytoplasmic domains of the common β subunit of the human GM-CSF, IL-3, and IL-5 receptors for growth signal transduction and tyrosine phosphorylation. *EMBO J.* 11: 3541-3549.
- Goodall, G.J., et al. 1993. A model for the interaction of the GM-CSF, IL-3 and IL-5 receptors with their ligands. *Growth Factors* 8: 87-97.
- Rao, P., et al. 1995. Human IL-3 receptor signaling: rapid induction of phosphatidylcholine hydrolysis is independent of protein kinase C but dependent on tyrosine phosphorylation in transfected NIH/3T3 cells. *J. Immunol.* 154: 1664-1674.

CHROMOSOMAL LOCATION

Genetic locus: CSF2RB (human) mapping to 22q12.3.

SOURCE

IL-3/IL-5/GM-CSFR β (8E4) is a mouse monoclonal antibody raised against IL-3/IL-5/GM-CSFR β of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 μ g IgG $_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IL-3/IL-5/GM-CSFR β (8E4) is available conjugated to either phycoerythrin (sc-21766 PE) or fluorescein (sc-21766 FITC), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

IL-3/IL-5/GM-CSFR β (8E4) is recommended for detection of 130 kDa β chain common to IL-3R, IL-5R and GM-CSFR of human origin by immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and flow cytometry (1 μ g per 1 x 10⁶ cells).

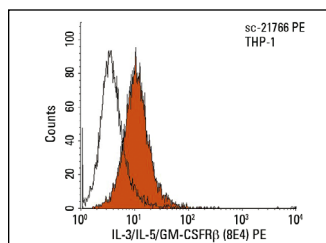
Suitable for use as control antibody for IL-3/IL-5/GM-CSFR β siRNA (h): sc-35658, IL-3/IL-5/GM-CSFR β , shRNA Plasmid (h): sc-35658-SH and IL-3/IL-5/GM-CSFR β shRNA (h) Lentiviral Particles: sc-35658-V.

Molecular Weight of IL-3/IL-5/GM-CSFR β : 130 kDa.

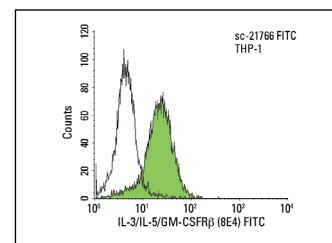
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



IL-3/IL-5/GM-CSFR β (8E4) (8E4) PE: sc-21766 PE. FCM analysis of THP-1 cells. Black line histogram represents the isotype control, normal mouse IgG $_1$ -PE: sc-2866.



IL-3/IL-5/GM-CSFR β (8E4) FITC: sc-21766 FITC. FCM analysis of THP-1 cells. Black line histogram represents the isotype control, normal mouse IgG $_1$ -FITC: sc-2855.

SELECT PRODUCT CITATIONS

- Röfling, J.H., et al. 2014. The osteogenic effect of erythropoietin on human mesenchymal stromal cells is dose-dependent and involves non-hematopoietic receptors and multiple intracellular signaling pathways. *Stem Cell Rev.* 10: 69-78.

STORAGE

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

PROTOCOLS

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