

## IL-3 (mBA-139): sc-4953

### BACKGROUND

Interleukin-3, or IL-3, is a pleiotropic, 15 kDa 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 70 kDa ligand-specific  $\alpha$  subunit and a 120-140 kDa signal transducing  $\beta$  subunit common to the IL-3/IL-5/GM-CSF receptors. The carboxy terminus of the  $\beta$  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. Ihle, J.N., Weinstein, Y., Keller, J., Henderson, L., Palaszynski, E. 1985. Interleukin 3. *Meth. Enzymol.* 116: 540-552.
2. Yang, Y.C., et al. 1986. Human IL-3 (multi-CSF): identification by expression cloning of a novel hematopoietic growth factor related to murine IL-3. *Cell* 47: 3-10.
3. Mekori, Y.A., Oh, C.K., Metcalfe, D.D. 1993. IL-3-dependent murine mast cells undergo apoptosis on removal of IL-3. Prevention of apoptosis by c-Kit ligand. *J. Immunol.* 151: 3775-3784.
4. Magnelli, L., Cinelli, M., Turchetti, A., Chiarugi, V.P. 1993. Apoptosis induction in 32D cells by IL-3 withdrawal is preceded by a drop in the intracellular calcium level. *Biochem. Biophys. Res. Commun.* 194: 1394-1397.
5. Kinoshita, T., Yokota, T., Arai, K., Miyajima, A. 1995. Suppression of apoptotic death in hematopoietic cells by signalling through the IL-3/GM-CSF receptors. *EMBO J.* 14: 266-275.
6. Mui, A.L., Wakao, H., Harada, N., O'Farrell, A.M., Miyajima, A. 1995. Interleukin-3, granulocyte-macrophage colony stimulating factor and interleukin-5 transduce signals through two Stat5 homologs. *EMBO J.* 14: 1166-1175.
7. Bagley, C.J., Woodcock, J.M., Hercus, T.R., Shannon, M.F., Lopez, A.F. 1995. Interaction of GM-CSF and IL-3 with the common  $\beta$ -chain of their receptors. *J. Leukoc. Biol.* 57: 739-746.

### SOURCE

IL-3 (mBA-139) is produced in *E. coli* as 42 kDa biologically active, GST-tagged fusion protein corresponding to 139 amino acids of IL-3 of mouse origin.

### PRODUCT

IL-3 (mBA-139) is purified from bacterial lysates (>98%); supplied as 50  $\mu$ g purified protein.

### RESEARCH USE

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

### BIOLOGICAL ACTIVITY

IL-3 (mBA-139) is biologically active as determined by a cell proliferation assay using factor-dependent mouse myeloblastic cell line, NSF-60: ED<sub>50</sub> = 0.05 - 0.1 ng/ml

### RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

### STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.