

# Cytokines

## Rat Recombinant IL-3 beta



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Catalog # 78181  
78181.1

10 µg  
50 µg

## Product Description

Interleukin 3 (IL-3) is a species-specific pleiotropic cytokine that promotes the survival and proliferation of pluripotent hematopoietic stem cells and lineage-committed progenitor cells and their differentiation into mature cells of most lineages, including mast cells, basophils, neutrophils, eosinophils, macrophages, dendritic cells, erythrocytes, and megakaryocytes (Fung et al.; Metcalf et al.; Broughton et al.). IL-3 is produced by activated T cells, and has a physiological role in inflammation and allergies by promoting the secretion of inflammatory mediators such as histamine, IL-4, and IL-6 by mast cells, basophils, and eosinophils. The IL-3 receptor consists of a unique alpha subunit (CD123) and two beta subunits, one specific for IL-3 ( $\beta$ IL-3), the other shared with the receptors for IL-5 and GM-CSF (beta common chain,  $\beta$ c, or CD131). IL-3 binding to heterodimeric receptors containing the alpha subunit and one of either beta subunits activates JAK/STAT, MAPK, and PI3K signaling pathways (Scott & Begley).

## Product Information

**Alternative Names:** HCGF, Mast cell growth factor, MCGF, Multi-CSF, P-cell stimulation factor  
**Accession Number:** P97688  
**Amino Acid Sequence:** MISDRGSDAH HLLRTLDCRT IALEILVKLP YPQVSGLNNS DDKANLRNST LRRVNLDEFL KSQEEFDSQD  
TTDIKSKLQK LKCCIPAAAS DSVLPGVYNK DLDDFKKKLR FYVIHLKDLQ PVSVSRPPQP TSSSDNFRPM TVEC

**Predicted Molecular Mass:** 16.3 kDa  
**Species:** Rat  
**Cross Reactivity:** Reported to be species-specific  
**Formulation:** Lyophilized after dialysis against phosphate-buffered saline.  
**Source:** E. coli

## Specifications

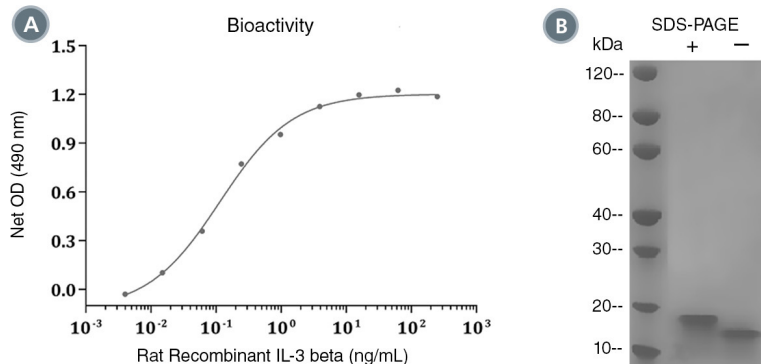
**Activity:** The specific activity is  $\geq 2 \times 10^5$  units/mg ( $EC_{50} \leq 5$  ng/mL) as determined by a cell proliferation assay using NFS-60 cells.  
**Purity:**  $\geq 95\%$   
**Endotoxin Level:** Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is  $\leq 0.2$  EU/µg protein.

## Preparation and Storage

**Storage:** Store at  $-80^\circ\text{C}$ .  
**Stability:** Stable as supplied for 12 months from date of receipt.  
**Preparation:** Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at  $2 - 8^\circ\text{C}$  for more than 2 weeks or at  $-20^\circ\text{C}$  to  $-80^\circ\text{C}$  for more than 3 months. Avoid repeated freeze-thaw cycles.

## Data



(A) The biological activity of Rat Recombinant IL-3 beta was tested by its ability to promote proliferation of NFS-60 cells. Cell proliferation was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the example above is less than 5 ng/mL.

(B) 5  $\mu$ g of Rat Recombinant IL-3 beta was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Rat Recombinant IL-3 beta has a predicted molecular mass of 16.3 kDa.

## Related Products

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## References

- Broughton SE et al. (2012) The GM-CSF/IL-3/IL-5 cytokine receptor family: from ligand recognition to initiation of signaling. *Immunol Rev* 250(1): 277–302.
- Fung MC et al. (1984) Molecular cloning of cDNA for murine interleukin-3. *Nature* 307(5948): 233–7.
- Metcalf D et al. (1986) Effects of purified bacterially synthesized murine multi-CSF (IL-3) on hematopoiesis in normal adult mice. *Blood* 68(1): 46–57.
- Scott CL & Begley CG. (1999) The beta common chain (beta c) of the granulocyte macrophage-colony stimulating factor, interleukin-3 and interleukin-5 receptors. *Int J Biochem Cell Biol* 31(10): 1011–5.

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