

Interleukin-3 (IL-3), active, human recombinant, expressed in *Nicotiana benthamiana*, His Tag, animal free

Catalog No:	99868
Lot No:	
Source:	<i>Nicotiana benthamiana</i>
UniProtKB:	P08700
Molecular formula:	$C_{718}H_{1132}N_{210}O_{207}S_5$
Extinction coefficient:	Ext. Coeff. Abs (280nm) 0.1% (1g/l) = 0.780
Molecular weight:	rhuman Interleukin-3 is a glycosylated polypeptide chain containing 133 amino acids (20–152 of P08700 IL3_HUMAN) and a His-tag at the N-terminal end. It has a predicted molecular mass of 16.2 kDa, however as result of glycosylation, the recombinant protein could migrate with an apparent molecular mass of 18-22 kDa in SDS-PAGE.
p.I:	7.34
Purity:	>97% as determined by SDS-PAGE gel.
Endotoxin level:	<0.04 EU/ µg protein (LAL method)

Sequence:

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HHHHHHHHAP MTQTSLKTS WVNCSNMIDE IITHLKQPPL PLLDFNNLNG EDQDILMENN  
LRRPNLEAFN RAVKSLQNAS AIESILKNLL PCLPLATAAP TRHPIHIKDG DWNEFRRLKT  
FYLKTLEAQA QQTTLAIF.
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Description:

IL-3 is a potent growth factor involved in a variety of cell activities such as cell growth, differentiation and apoptosis. It takes part of several biological responses such as proliferation, and differentiation of a broad range of hematopoietic progenitor cells into erythrocytes, granulocytes, monocytes, megakaryocytic and mast cells. IL-3 also induces the production of several enzymes involved in cellular metabolism, differentiation, and DNA/RNA metabolism. IL-3 is produced by activated T-lymphocytes, keratinocytes, NK-cells, mast cells, endothelial cells and monocytes. The biological activity of IL-3 is mediated through specific cell surface receptor that is composed of alpha and beta subunits. Alpha subunit is responsible for the binding and beta subunit transmits signals across the plasmamembrane; il-3 is known to activate three signaling pathways: JAK/STAT, RAS/RAF/MAP kinase, and the PI-3kinase/PKB pathways. IL-3 is also implicated in the pathogenesis of several diseases such as asthma, atherosclerosis and multiple sclerosis. Recombinant protein has been widely used in clinical practice, in the treatment of leukemia and as therapy for patients with bone marrow deficiency function.

Source:

Human recombinant protein expressed in *Nicotiana benthamiana*. It is produced by transient expression in non-transgenic plants and is purified by sequential chromatography (FPLC). This product contains no animal-derived components or impurities. Animal Free product.

Formulation:

Recombinant human IL-3 is lyophilized from PBS 1X buffer pH 7.4.

Reconstitution recommendation:

Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. At higher concentration the solubility may be reduced and multimers generated. Optimal concentration should be determined for specific application and cell lines.

Storage and Stability:

This lyophilized preparation is stable at 2-8°C for short term, for long storage it should be kept at -20°C. Reconstituted protein should be stored in working aliquots at -20°C. Repeated freezing and thawing is not recommended.

Purity Confirmation:

The protein was resolved by SDS polyacrylamide gel electrophoresis and the gel was stained with Coomassie blue (Fig. 1).

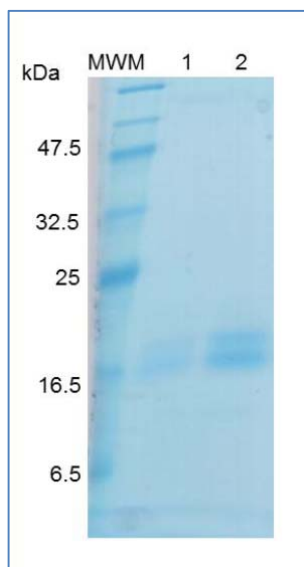


Figure 1. SDS-PAGE analysis of human recombinant IL-3. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue.
Lane MWM: molecular weight marker (kDa)
Lane 1: contains 0.15 µg and
Lane 2: contains 0.3 µg of rhuman IL-3

Serological Confirmation:

The protein was electrophoresed under reducing conditions on a 15%SDS-polyacrylamidegel, transferred by electroblotting to a NC membrane and visualized by immune-detection with specific FLT-3 antibody (Fig. 2).

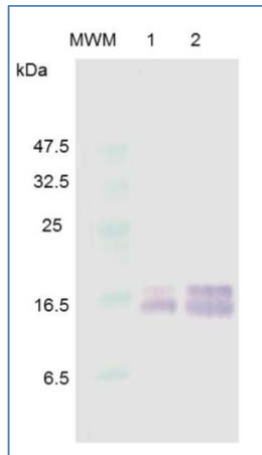


Figure 2. Analysis of rhuman IL-3 with specific antibody by Western Blot;
Lane MWM: Molecular weight marker (kDa)
Lane 1: contains 0.15 µg and
Lane 2: contains 0.3 µg of rhuman IL-3

Biological Activity:

The activity is determined by the dose-dependent stimulation of TF-1 cells. ED50 of rHuman IL-3 is typically less than 1ng/ml.

References:

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- Robin, C. et al., 2006. An unexpected role for IL-3 in the embryonic development of hematopoietic stem cells. *Dev Cell.*, Aug; 11(2): 6097-60104.
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- Aggletta, M. et al., 1993. Interleukin-3 in vivo: kinetic of response of target cells. *Blood* 82: 2054-2061.
- Kitamura, T. et al., 1991. Expression cloning of the human IL-3 receptor cDNA reveals a shared beta subunit for the human IL-3 and GM-CSF receptors. *Cell* 66 1165-1174.

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