

Recombinant Human Interleukin-3 Active

Human recombinant protein expressed in *Nicotiana benthamiana*

RF0042

Alternative Names: MCGF / MULTI-CSF

Molecular Formula: C718H1132N210O207S5

UniProtKB: P08700

p.I: 7.34

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.

Sequence:

HHHHHHHHAPMTQTTSLKTSWVNCSNMIDEIITHLKQPPLPL
LDFNNLNGEDQDILMENNLRPNLEAFNRAVKSLQNASAIES
ILKNLLPCLPLATAAPTRHPIHIKGDWNEFRRLTFYLKTL
NAQAQQTLSLAIF

Formulation:

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

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 plasma membrane; 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, athero sclerosis 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.

Available sizes: 1 µg, 5 µg, 10 µg

Ext. Coeff. Abs (280nm) 0.1% (=1g/l) =0.780

Purity > 97% by SDS-PAGE gel

Endotoxin Level : < 0.04 EU / µg protein (LAL method)

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.

Reconstitution Recommendation:

Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. 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, 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.

References:

- Schroeder, J. T. et al., 2009. J. Immunol. 182 2432-2438.
- Asquith, K et al., 2008. J. Immunol. 180 1199-1206.
- Munitz, A. et al., 2006. J. Immunol. 177 77-83.
- 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.
- Starr, R. et al., 1997. A family of cytokine –inducible inhibitors of signaling. Nature 387 917-921.
- Aggietta, 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.

Product(s) expressed through a transient plant system are intrinsically Animal-free

Applications:

Cell culture, Western Blot

For R+D purposes only. Purchaser must determine the suitability of the product for their particular use.

Upon this protein has not been tested in a particular technique this not necessarily excludes its use in such procedures.

Purity Confirmation:

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

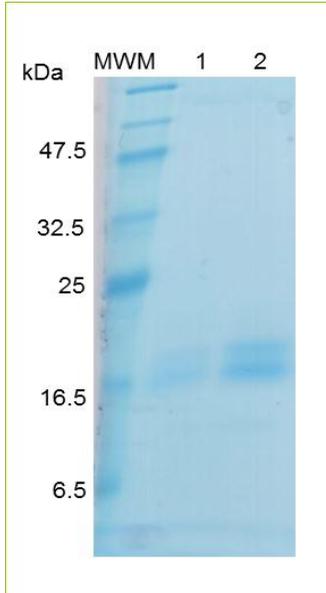


Figure 1.- SDS-PAGE analysis of recombinant IL-3. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. Lane MWM: Molecular weight marker (kDa); Lane-1 contains 0.15 ug and lane-2 contains 0.3 ug of rhuman IL-3.

Serological Identification:

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

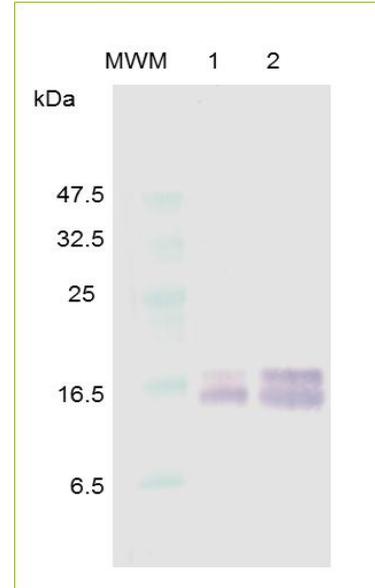


Figure 2.- Analysis of rhuman IL-3 with specific antibody by Western Blot; Lane MWM: Molecular weight marker (kDa); Lane-1 contains 0.15 ug and lane-2 contains 0.3 ug of rhuman IL-3.

Biological Activity:

The activity is determined by the dose-dependent stimulation of TF-1 cells.

ED50 of Agrenvec's rHuman IL-3 is typically less than 1 ng/ml.

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