

Recombinant Human Interleukin-6 Active

Human recombinant protein expressed in *Nicotiana benthamiana*

RF0032

Alternative Names: Interleukin 6 (interferon, beta 2)

Molecular Formula: C969H1545N283O296S9

UniProtKB: P05231

p.I: 6.93

Molecular Weight:

rhuman Interleukin-6 is a polypeptide chain containing 183 amino acids (30 – 212 of P05231 IL6_HUMAN) and 10 aa Histidine-based tag. It as a predicted molecular mass of 22.2 kDa, however as result of potential glycosilation, the recombinant protein could migrate with an apparent molecular mass of 23-24 kDa in SDS-PAGE gel.

Sequence:

HHHHHHHHHHVPPGEDSKDVAAPHRQPLTSSERIDKQIRYI
LDGISALRKETCNKSNMCESSKEALAENNLNLPKMAEKDGC
FQSGFNEETCLVKIITGLLEFEVYLEYLQNRFEESSEQARAV
QMSTKVLIQFLQKKAKNLDAITTPDPTTNASLLTKLQAQNG
WLQDMTTHLILRSFKEFLQSSLRALRQM

Formulation:

Recombinant human IL-6 is lyophilized from Tris HCl 20 mM buffer pH 8.5 and 125mM NaCl.

Description:

Recombinant human IL-6 is an important pro-inflammatory and anti-inflammatory cytokine expressed by many types cell including: T and B cells, macrophages, endothelial cells, fibroblasts, monocytes, keratinocytes and certain tumor cells. It is a multifunctional cytokine that modulates several physiologic processes such as haematopoiesis, stimulation of immunoglobulin synthesis, maturation and activation of B cells, differentiation of T lymphocytes and regulation of the hepatic acute-phase response. IL-6 is also produced in muscle, is discharged into the bloodstream after muscle contraction and acts increasing the breakdown of fats and improving insulin resistance. IL-6 induces signaling through a cell surface heterodimeric receptor complex composed of a ligand binding subunit (IL-6 R) and a signal transducing subunit (gp130). IL-6 binds to IL-6 R, triggering IL-6 R association with gp130 and gp130 dimerization. Soluble forms of IL-6 R are generated by both alternate splicing and proteolytic cleavage. In a mechanism known as trans-signaling, complexes of soluble IL-6 and IL-6 R elicit responses from gp130-expressing cells that lack cell surface IL-6 R. Trans-signaling enables a wider range of cell types to respond to IL-6, as the expression of gp130 is ubiquitous, while that of IL-6 R is predominantly restricted to hepatocytes, leukocytes, and lymphocytes.

Available sizes: 1 µg, 5 µg, 10 µg, 20 µg, 50 µg

Ext. Coeff. Abs (280nm) 0.1% (=1g/l) =0.46

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. 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, 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:

- Fonseca, J.E. et al. (2009) Interleukin-6 as a key player in systemic inflammation and joint destruction. *Autoimmun. Rev.*, 8:538-542.
- Kamimura, D. et al. (2003) IL-6 signal transduction and its physiological roles: signal orchestration model. *Rev. Physiol. Biochem. Pharmacol.*, 149: 1-38.
- Kanazawa, T. et al. (2007) Interleukin-6 directly influences proliferation and invasion potential of head and neck cancer cells. *Eur. Arch. Otorhinolaryngol.*, 264:815-821.
- Kishimoto, T. (1989) The biology of interleukin-6. *Blood*, 74:1-10.
- Febbraio, M. A. and B. K. Pedersen (2002) Muscle-derived interleukin-6: mechanisms for activation and possible biological roles. *FASEB J.*, 16: 1335.
- Van Sninck, J (1990) Interleukin-6: an overview. *Annu. Rev. Immunol.*, 8:253-78.
- Hong, D. et al. (2007) Interleukin-6 and its receptor in cancer: implications for translational therapeutics. *Cancer. Nov 1; 110(9):1911-28.*

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

Applications:

Cell culture, Western Blot.

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

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

Purity Confirmation:

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

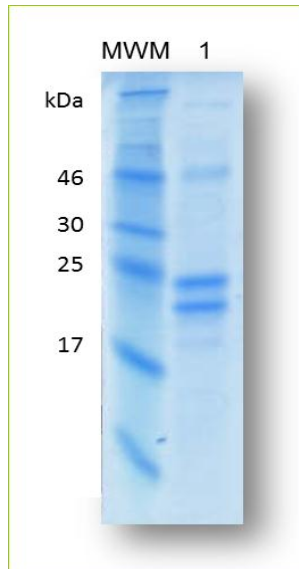


Figure 1. SDS-PAGE analysis of recombinant IL-6. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. MWM: Molecular weight marker (kDa); Lane 1 contains 300 ng of recombinant IL-6.

Serological Identification:

The protein was electrophoresed under reducing condition on a 15% SDS-polyacrylamide gel, transferred by electro blotting to a NC membrane and visualized by immune-detection with specific IL-6 antibody. Fig. 2.

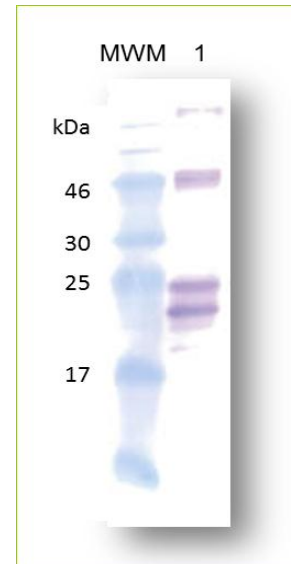
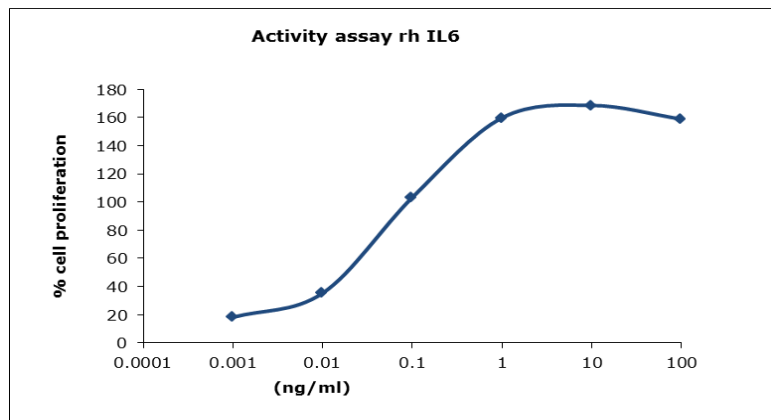


Figure 2. Western Blot analysis of recombinant IL-6. MWM: Molecular weight marker (kDa); Lane 1 contains 300 ng of recombinant IL-6.

Biological Activity:

The specific activity is determined by the dose-dependent stimulation of the proliferation of human TF-1 cells (human erytroleukemic indicator cell line).

ED50 < 1 ng/ml



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