



# Recombinant Human Interleukin-6

20200123BB



**FOR RESEARCH ONLY! NOT FOR HUMAN USE!**

|                           |                            |
|---------------------------|----------------------------|
| <b>Cat.-no:</b>           | <b>200-031</b>             |
| <b>Size:</b>              | 20 µg                      |
| <b>Lot. No.:</b>          | According to product label |
| <b>Country of origin:</b> | Germany                    |

## Scientific Background

|                  |   |
|------------------|---|
| <b>Gene:</b>     | <i>IL6</i>  |
| <b>Synonyms:</b> | CTL differentiation factor, B-cell stimulatory factor 2, Hybridoma growth factor, Interferon beta-2 |

Interleukin 6 (IL-6) is a pleiotropic  $\alpha$ -helical cytokine that plays important roles in acute phase reactions, inflammation, hematopoiesis, bone metabolism, and cancer progression. IL-6 activity is essential for the transition from acute inflammation to either acquired immunity or chronic inflammatory disease. It is secreted by multiple cell types as a 22 kDa-28 kDa phosphorylated and variably glycosylated molecule. Mature human IL6 is 183 amino acids (aa) in length and shares 41% aa sequence identity with mouse and rat IL-6. Alternate splicing generates several isoforms with internal deletions, some of which exhibit antagonistic properties. Human IL6 is equally active on mouse and rat cells. IL-6 induces signaling through a cell surface heterodimeric receptor complex composed of a ligand binding subunit (IL6 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. Soluble splice forms of gp130 block trans-signaling from IL-6/ IL-6 R but not from other cytokines that utilize gp130 as a co-receptor.

## References

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4. Jones, S.A. (2005) J. Immunol. 175:3468.
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6. Hirano, T. *et al.* (1986) Nature 324:73.
7. Alberti, L. *et al.* (2005) Cancer Res. 65:2.
8. Kestler, D.P. *et al.* (1995) Blood 86:4559.
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10. Bihl, M.P. *et al.* (2002) Am. J. Respir. Cell Mol. Biol. 27:48.
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## Sequence

```
MAPVPPGEDSKDVAAPHRQPLTSSERIDKQIRYILDGISALRKETC
NKSNMCESSKEALAEENLNLPKMAEKDGCFOQSGFNEETCLVKIITG
LLEFEVYLEYLQNRFESEEQARAVQMSTKVLIQFLQKAKNLDAI
TTPDPTNASLLTKLQAQNQWLQDMTTHLILRSFKEFLQSSLRALR
QM
```

## Database References

|                        |           |
|------------------------|-----------|
| <b>Protein RefSeq:</b> | NP_000591 |
| <b>Uniprot ID:</b>     | P05321    |
| <b>mRNA RefSeq:</b>    | NM_000600 |

## Product Specifications

|  |                                     |
|--|-------------------------------------|
| <b>Expressed in</b>                    | E.coli                              |
| <b>Purity</b>                          | > 98% by SDS-PAGE & Coomassie stain |
| <b>Buffer</b>                          | PBS                                 |
| <b>Endotoxin</b>                       | < 0.1ng per ug of IL-6              |
| <b>Stabilizer</b>                      | None                                |
| <b>Formulation</b>                     | lyophilized                         |
| <b>Length (aa):</b>                    | 186                                 |
| <b>MW:</b>                             | 21.1 kDa                            |
| <b>Result by N-terminal sequencing</b> | MAPVPPGE                            |

**Stability:** The lyophilized IL-6, though stable at room temperature, is best stored desiccated below 0°C. Reconstituted IL-6 should be stored in working aliquots at -20°C.

**Reconstitution:** The lyophilized IL-6 should be reconstituted in water to a concentration not less than 100 µg/ml. This solution can be diluted into other buffered solutions or stored at -20 °C for future use.



**AVOID REPEATED FREEZE AND THAW CYCLES!**

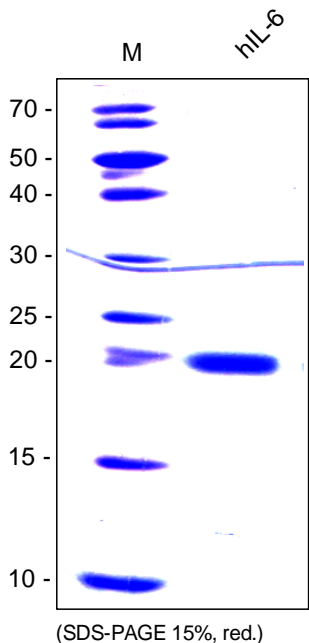
**Biological Activity:** The ED<sub>50</sub> as determined by the dose-dependent stimulation of murine hybridoma B9 cells is in the range of 2-10 pg/ml. As positive control the WHO standard 89/548 was used.



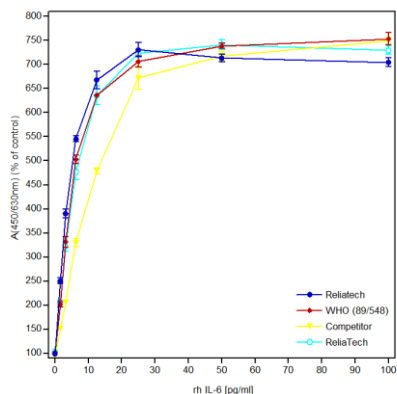
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## Handling/Applications



**Figure 1:** SDS-PAGE analysis of recombinant human IL-6. Sample was loaded in 15% SDS-polyacrylamide gel under reducing conditions and stained with Coomassie blue.



**Figure 2:** Proliferation assay with the mouse hybridoma cell line B9. The cells were stimulated using 2 different lots produced at ReliaTech, the WHO standard 89/548 and an IL-6 protein from a competitor. The cells were stimulated with increasing amounts of recombinant human IL-6.