



# Recombinant Human IL-6

Catalogue Number: REC106

## Specifications and Use

### Source

- A DNA sequence encoding mature human IL-6 (Pro29 – Met212; Accession NM\_000600) was expressed in *E.coli*.

### Molecular Mass

- The methinyl form of recombinant human IL-6 has a calculated molecular mass of approximately 21 kDa.

### Purity

- 90%, as determined by SDS-PAGE and visualized by silver stain.

### Endotoxin Level

- < 1.0 EU per 1 µg of the protein as determined by LAL method.

### Activity

- Measured in a cell proliferation assay using T1165.85.2.1 mouse plasmacytoma cells. Nordan, R.P. *et al.* (1987) *J. Immunol.* **139**:813.
- The ED<sub>50</sub> for this effect is typically 0.2 – 0.8 ng/mL.

### Formulation

- Supplied as lyophilized powder.
- Reconstitute in PBS with 0.1% BSA
- Centrifuge the vial before opening to prevent loss of the powder.

### Storage

- Samples are stable up to 1 year from date of receipt at -20°C.
- Upon thawing, this protein can be stored under sterile conditions at 2-8°C for two weeks or at -70°C in a manual defrost freezer for three months without detectable loss of activity.
- Avoid repeated freeze-thaw cycles. Samples are recommended to be aliquot in small volumes and frozen for multiple uses.

## Background

Interleukin 6 (IL-6) is a pleiotropic 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 (1, 4). Mature human IL-6 is 183 amino acids (aa) in length and shares 41% aa sequence identity with mouse and rat IL-6 (5). Alternate splicing generates several isoforms with internal deletions, some of which exhibit antagonistic properties (6, 9). Human IL-6 is equally active on mouse and rat cells (10). IL-6 induces signaling through a cell surface heterodimeric receptor complex composed of a ligand binding subunit (IL-6R) and a signal transducing subunit (gp130). IL-6 binds to IL-6R, triggering IL-6R association with gp130 and gp130 dimerization (11). gp130 is also a component of the receptors for CLC, CNTF, CT-1, IL-11, IL-27, LIF, and OSM (12). Soluble forms of IL-6 R are generated by both alternate splicing and proteolytic cleavage (3). In a mechanism known as trans-signaling, complexes of soluble IL-6 and IL-6R elicit responses from gp130-expressing cells that lack cell surface IL-6R (3). 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-6R is predominantly restricted to hepatocytes, leukocytes, and lymphocytes (3). Soluble splice forms of gp130 block trans-signaling from IL-6/IL-6R but not from other cytokines that utilize gp130 as a coreceptor on of gp130 is ubiquitous, while that of IL-6R is predominantly restricted to hepatocytes, leukocytes, and lymphocytes (3). Soluble splice forms of gp130 block transsignaling from IL-6/IL-6R but not from other cytokines that utilize gp130 as a coreceptor (4, 13).

## References

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