

## Recombinant Human IL-6 Protein

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|---------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Catalog Number:</b>    | 631701, 631702                                                                                                     |
| <b>Size:</b>              | 20 &mu;g, 100 &mu;g                                                                                                |
| <b>Target Name:</b>       | IL-6, Interleukin-6, B cell stimulating factor-2 (BSF-2), Cytotoxic T cell differentiation factor (CDF), Hybridoma |
| <b>Regulatory Status:</b> | RUO                                                                                                                |

### PRODUCT DETAILS

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| <b>Application:</b>           | Bioassay                                                                                                                                                                                                                                        |
| <b>Format:</b>                | Lyophilized from sterile PBS, pH 7.4.                                                                                                                                                                                                           |
| <b>Expression Host:</b>       | E.coli                                                                                                                                                                                                                                          |
| <b>Species:</b>               | Human                                                                                                                                                                                                                                           |
| <b>accession number:</b>      | NP_000591.1                                                                                                                                                                                                                                     |
| <b>Sources:</b>               | A DNA sequence encoding the mature form of human IL6 (NP_000591.1) (Val30-Met212) was expressed with an initial Met at the N-terminus.                                                                                                          |
| <b>Molecular Weight:</b>      | The recombinant human IL6 consists of 184 amino acids and predicts a molecular mass of 20.95 kDa. It migrates as an approximately 19.7 kDa band in SDS-PAGE under reducing conditions.                                                          |
| <b>Affinity Tag:</b>          | None                                                                                                                                                                                                                                            |
| <b>Purity:</b>                | ≥ 95 % as determined by SDS-PAGE                                                                                                                                                                                                                |
| <b>Endotoxin level:</b>       |                                                                                                                                                                                                                                                 |
| <b>Protein Concentration:</b> | Lyophilized                                                                                                                                                                                                                                     |
| <b>Storage and Handling:</b>  | Samples are stable for up to twelve months from date of receipt at -20°C to -80°C. Store it under sterile conditions at -20°C to -80°C. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles. |

### BACKGROUND INFORMATION

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Human interleukin-6 (IL-6) is a multifunctional cytokine produced by a wide range of cells, including macrophages, T cells, fibroblasts, and endothelial cells in response to infection or tissue injury. It plays a central role in immune regulation, inflammation, and hematopoiesis. IL-6 promotes differentiation of B cells into antibody-secreting plasma cells, supports T cell proliferation, and drives the acute phase response in the liver, leading to production of proteins such as C-reactive protein. It also influences metabolic and regenerative processes.

Structurally, IL-6 is a ~26 kDa glycoprotein composed of a four  $\alpha$ -helix bundle typical of the cytokine family. IL-6 exerts its biological activity by binding to the IL-6 receptor (IL-6R $\alpha$ ), which exists in both membrane-bound and soluble forms. The IL-6/IL-6R complex then associates with the signal-transducing co-receptor gp130, triggering intracellular signaling cascades such as the JAK/STAT3, MAPK, and PI3K pathways. This dual signaling mechanism—classic signaling via membrane IL-6R and trans-signaling via soluble IL-6R—expands the range of IL-6-responsive cells.

Dysregulated IL-6 production is implicated in numerous diseases, including chronic inflammatory disorders (e.g., rheumatoid arthritis), autoimmune diseases, cytokine release syndrome, and cancer, where it can promote tumor growth and survival. Elevated IL-6 levels are also associated with severe infections and systemic inflammation. Therapeutically, targeting the IL-6 pathway has proven highly effective; monoclonal antibodies against IL-6 or IL-6R are widely used to treat inflammatory diseases and are also employed to manage cytokine storm syndromes. Conversely, IL-6 has been explored as a biomarker and, in some contexts, as a target to modulate immune and regenerative responses.

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