Recombinant Human IL-12 Protein

Product Name

Recombinant Human IL-12 Protein

Size / Catalog Number

50μg / GMP-TL508-0050

100μg / GMP-TL508-0100

Product Information

Synonyms: IL12, p70, Interleukin-12

Accession: UniProt P29459-1 & P29460-1

Expressed Region: Arg23-Ser219 (P29459-1) & Ile23-Ser328 (P29460-1)

Tag: His Tag & Fc Tag

Expression system: HEK293 cells

Predicted Molecular weight: 65 kDa

Purity: > 90% as determined by SDS-PAGE

Endotoxin: < 0.1 EU per 1 μg of protein (LAL method)

Activity: Measured in a cell proliferation assay using PHA-activated PBMCs, corresponding to a specific activity of ≥ 1.5×10^6 IU/mg.

Form: Lyophilized from sterile PBS (pH7.4), typically supplemented with 6% mannitol as a protectant.

Background

The recombinant human IL-12 fusion protein is a heterodimer produced by transient transfection in HEK-293 cells, consisting of an IL-12A (p35) subunit with a 6×his-tag and an IL-12B (p40) subunit with an Fc-tag. As a pivotal immunoregulatory cytokine, IL-12 drives naive T cell differentiation into Th1 cells and potently activates T cells and NK cells, stimulating IFN-γ and TNF-α production. Critically for cell and gene therapy, this protein is essential: it enables *ex vivo* expansion and activation of CAR-T cells and NK cells, enhancing their anti-tumor cytotoxicity; it is applied in immunotherapies against tumors, metastatic cancers, viral infections (e.g., AIDS), and as an adjuvant, functioning by eliciting potent Th1 immune responses and cytotoxicity; its anti-angiogenic activity also holds therapeutic potential. The native dimeric structure ensures full bioactivity, while the dual His/Fc-tag design facilitates efficient purification and extends serum half-life, making it an ideal tool for immunotherapy applications.

Stability & Storage

Lyophilized powder: Stable for 12 months at -80°C or 6 months at -20°C when stored in the original sealed container under desiccant.

Reconstitution: Dissolve in sterile water for injection, 0.9% NaCl, or PBS (pH7.4), maintaining a final concentration ≥ 100 μg/mL to prevent adsorption.

Handling: Aliquot to avoid repeated freeze-thaw cycles.

References

1. Frazão JB, Colombo M, Simillion C, *et al*. Gene expression in chronic granulomatous disease and interferon-γ receptor-deficient cells treated in vitro with interferon-γ. J Cell Biochem. 2019 Mar;120(3):4321-4332.

2. Li S. IL-12-Based therapy of malignancies. Drugs Today (Barc). 2001 Sep; 37(9): 629-637.
3. Brunda MJ. Interleukin-12. J Leukoc Biol. 1994 Feb;55(2):280-8.

Intended Us

For research and manufacturing purposes only.