Recombinant Human IL-4 Protein

Product Name

Recombinant Human IL-4 Protein

Size/Catalog Number

100μg / TL301-0100

Product Information

Synonyms: Interleukin-4, B-cell stimulatory factor 1 (BSF-1), Lymphocyte stimulatory factor 1

Accession: Uniprot P05112

Expressed Region: His25-Ser153

Tag: C-terminal 6×His-tag

Expression system: HEK293 cells

Molecular weight: 15.8kDa

Purity: > 90% as determined by SDS-PAGE

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

Activity: Exhibits a specific activity of ≥1.0×10^6 IU/mg as measured in a TF-1 cell proliferation assay.

Form： Lyophilized from sterile 20mM phosphate-buffered saline (PBS), pH 7.4, normally containing 6–8% (w/v) mannitol as protectant

Background

As a master regulator of Th2 immunity, IL-4 activates the JAK1/3-STAT6 signaling cascade via the IL-4Rα/γc receptor complex, directing naive CD4+ T-cell differentiation into Th2 effectors secreting IL-5/IL-13 while mediating B-cell class switching to IgE/IgG1 and FcεRI upregulation. The recombinant human IL-4-His fusion protein is a high-purity functional cytokine produced in HEK-293 expression systems, featuring a C-terminal hexahistidine tag to facilitate affinity purification and structural integrity. In cell therapy applications, this protein serves as an essential inducer for monocyte-derived immature dendritic cell (imDC) generation through GM-CSF synergy, effectively suppressing CD14 expression and enhancing antigen-capturing capacity to standardize tumor vaccine production. It also modulates CAR-T cell manufacturing by balancing Th1/Th2 polarization for optimized solid tumor responses and prolongs mast cell survival in vitro to enhance stability of allergen-specific immunotherapies. The HEK-293-derived expression ensures authentic glycosylation patterns, while the His-tag maintains native conformation and enables high-resolution chromatographic purification.

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 (pH 7.4) maintaining final concentration ≥100 μg/mL to prevent adsorption.

Handling: Aliquot to avoid repeated freeze-thaw cycles.

References

1. Brown MA, Hural J. Functions of IL-4 and Control of Its Expression. Crit Rev Immunol.

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2. Sallusto F, Lanzavecchia A. Efficient presentation of soluble antigen by cultured human dendritic cells is maintained by granulocyte/macrophage colony-stimulating factor plus interleukin 4 and downregulated by tumor necrosis factor alpha. J Exp Med. 1994 Apr 1;179(4):1109-18.
3. Iwaszko M, Biały S, Bogunia-Kubik K. Significance of Interleukin (IL)-4 and IL-13 in Inflammatory Arthritis. Cells. 2021 Nov 3;10(11):3000.
4. Kubo M. The role of IL-4 derived from follicular helper T (TFH) cells and type 2 helper T cells. Int Immunol. 2021 Nov 25;33(12):717-722.

Intended Us

For research and manufacturing purposes only.