DESCRIPTION

Source: E. coli-derived human IL-4 protein, His25-Ser153, with an N-terminal Met.
Accession #: P05112

N-terminal Sequence Analysis
Predicted Molecular Mass: 15 kDa

SPECIFICATIONS

SDS-PAGE: 14 kDa, reducing conditions.
Activity: Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. et al. (1989) J. Cell Physiol. 140:323. The ED50 for this effect is 0.0500-0.200 ng/mL.

Endotoxin Level: <0.10 EU per 1 μg of the protein by the LAL method.
Purity: >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation: Lyophilized from a 0.2 μm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution: Reconstitute at 100-200 μg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

Shipping: The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage:
- Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

Bioactivity: Recombinant Human IL-4 Protein Bioactivity Comparison. As an alternative, please consider our next generation Recombinant Human IL-4 (Catalog # BT-004). It has equivalent bioactivity to Recombinant Human IL-4 (Catalog # 204-IL). It combines R&D Systems quality with scalability that allows for a solid supply chain. Both Recombinant Human IL-4 proteins are measured in a cell proliferation assay using TF-1 human erythroleukemic cell line.

Equivalent Bioactivity of GMP, Animal-Free, and RUO grades of Recombinant Human IL-4: Equivalent bioactivity of GMP (Catalog # 204-GMP), Animal-Free (Catalog # AFL204), and RUO (Catalog # 204-IL) grades of Recombinant Human IL-4 as measured in cell proliferation assay (orange, green, red, respectively).
Interleukin-4 (IL-4), also known as B cell-stimulatory factor-1, is a monomeric, approximately 13 kDa-18 kDa Th2 cytokine that shows pleiotropic effects during immune responses (1-3). It is a glycosylated polypeptide that contains three intrachain disulfide bridges and adopts a bundled four α-helix structure (4). Human IL-4 is synthesized with a 24 aa signal sequence. Alternate splicing generates an isoform with a 16 aa internal deletion. Mature human IL-4 shares 55%, 39% and 43% aa sequence identity with bovine, mouse, and rat IL-4, respectively. Human, mouse, and rat IL-4 are species-specific in their activities (5-7). IL-4 exerts its effects through two receptor complexes (8, 9). The type I receptor, which is expressed on hematopoietic cells, is a heterodimer of the ligand binding IL-4 Rα and the common γ chain (a shared subunit of the receptors for IL-2, -7, -9, -15, and -21). The type II receptor on nonhematopoietic cells consists of IL-4 Rα and IL-13 Rα1. The type II receptor also transduces IL-13 mediated signals. IL-4 is primarily expressed by Th2-biased CD4⁺ T cells, mast cells, basophils, and eosinophils (1, 2). It promotes cell proliferation, survival, and immunoglobulin class switch to IgG4 and IgE in human B cells, acquisition of the Th2 phenotype by naïve CD4⁺ T cells, priming and chemotaxis of mast cells, eosinophils, and basophils, and the proliferation and activation of epithelial cells (10-13). IL-4 plays a dominant role in the development of allergic inflammation and asthma (12, 14).

References: