**DESCRIPTION**

**Source**  
E. coli-derived  
His25-Ser153, with an N-terminal Met  
Accession # P05112

**N-terminal Sequence Analysis**  
Met

**Predicted Molecular Mass**  
15 kDa

**SPECIFICATIONS**

**SDS-PAGE**  
14 kDa, reducing conditions

**Activity**  
The specific activity of recombinant human IL-4 is approximately 2.9 x 10^6 IU/μg, which is calibrated against human IL-4 WHO International Standard (NIBSC code: 88/656).

**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 (Catalog # 204-IL) stimulates cell proliferation of the TF-1 human erythroleukemic cell line. The ED₅₀ for this effect is 0.05-0.2 ng/mL.

**SDS-PAGE**  
1 μg/lane of Recombinant Human IL-4 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 14 kDa.
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: