R&D SYSTEMS
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Recombinant Mouse IL-4

Catalog Number: 404-ML/CF

DESCRIPTION

Source	*E. coli*-derived His23-Ser140, with an N-terminal Met Accession # P07750
N-terminal Sequence Analysis	His23
Predicted Molecular Mass	14 kDa

SPECIFICATIONS

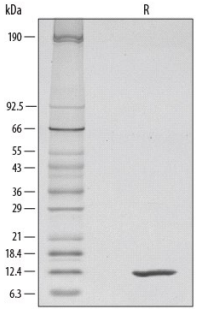
Activity	Measured in a cell proliferation assay using HT−2 mouse T cells. The ED_{50} for this effect is typically 0.3−1.5 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
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.

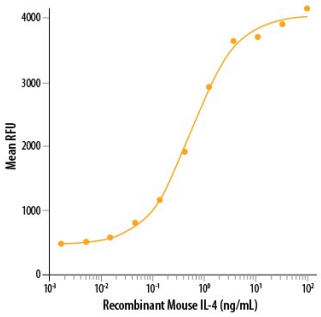
DATA

SDS-PAGE



1 µg/lane of Recombinant Mouse IL-4 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 12 kDa.

Bioactivity



Recombinant Mouse IL-4 (Catalog # 404−ML/CF) stimulates cell proliferation of the HT-2 mouse T cell line. The ED_{50} for this effect is typically 0.3-1.5 ng/mL.

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BACKGROUND

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 - 4). It is a glycosylated polypeptide that contains three intrachain disulfide bridges and adopts a bundled four α-helix structure (5). Mouse IL-4 is synthesized with a 24 aa signal sequence. Mature mouse IL-4 shares 39%, 39%, and 59% aa sequence identity with bovine, human, and rat IL-4, respectively. Human, mouse, and rat IL-4 are species-specific in their activities (6 - 8). IL-4 exerts its effects through two receptor complexes (9, 10). 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 IgG1 and IgE in mouse 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 (11 - 14). IL-4 plays a dominant role in the development of allergic inflammation and asthma (13, 15).

References:

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