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Recombinant Mouse IL-4 Protein

Catalog Number:	670401, 670402
Size:	5 μg, 100 μg
Target Name:	IL-4,interleukin-4, B cell growth factor 1 (BCGF-1), B-cell stimulatory factor 1 (BSF-1), lymphocyte stimula
Regulatory Status:	RUO

PRODUCT DETAILS

Application:	Bioassay
Format:	Lyophilized from sterile PBS, pH 7.4.
Expression Host:	E.coli
Species:	Mouse
accession number:	NP_067258.1
Sources:	A DNA sequence encoding the mouse IL4 (NP_067258.1) (His23-Ser140) was expressed with a N-terminal Met.
Molecular Weight:	The recombinant mouse IL4 consists of 119 amino acids and predicts a molecular mass of 13.4 KDa. It migrates as an approximately 14 KDa band in SDS-PAGE under reducing conditions.
Affinity Tag:	None
Purity:	> 90 % as determined by SDS-PAGE.
Endotoxin level:	< 1.0 EU per μg protein
Protein Concentration:	Lyophilized
Storage and Handling:	Samples are stable for up to twelve months from date of receipt at -20℃ to -80℃. Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.

BACKGROUND INFORMATION

Mouse interleukin-4 (IL-4) is a pleiotropic cytokine that plays a central role in type 2 immunity, allergic inflammation, and immune-cell differentiation. It is produced primarily by activated T helper 2 (Th2) cells, as well as mast cells, basophils, eosinophils, and other immune-cell populations under appropriate conditions. IL-4 promotes the differentiation of naïve CD4+ T cells into Th2 cells, supports B-cell proliferation and antibody class switching to IgG1 and IgE in mice, and influences macrophage polarization toward an alternatively activated, M2-like phenotype. These activities contribute to parasite defense, tissue repair, and regulation of inflammatory responses.

Mouse IL-4 is a secreted cytokine belonging to the type I cytokine family. Its mature protein is approximately 120 amino acids long and adopts a characteristic four-alpha-helix bundle structure. IL-4 signals through two receptor complexes: the type I receptor, composed of IL-4 receptor alpha (IL-4Rα) and the common gamma chain (γc/CD132), and the type II receptor, composed of IL-4Rα and IL-13 receptor alpha 1 (IL-13Rα1). IL-4 binds IL-4Rα as its primary receptor-binding component, enabling recruitment of the

second receptor chain and activation of intracellular signaling, particularly the JAK–STAT6 pathway.

Dysregulated IL-4 signaling contributes to allergic diseases, including asthma, atopic dermatitis, and food allergy, by promoting IgE production, Th2 responses, and mucus-associated inflammation. Excessive type 2 immunity may also contribute to fibrosis and certain tumor-associated immune environments. Conversely, IL-4 supports protective responses against helminth parasites and can promote tissue repair.

Therapeutically, IL-4 signaling is an important target in allergic and inflammatory disease. Blocking IL-4Rα can inhibit signaling by both IL-4 and IL-13, reducing type 2 inflammation. Mouse IL-4 is widely used in preclinical research to investigate Th2 differentiation, macrophage biology, allergic disease mechanisms, and potential immunomodulatory therapies.

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