

**#40004** Store at -20C

# Mouse IL-4 Recombinant Protein

20 µg

**Cell Signaling**  
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**For Research Use Only. Not for Use in Diagnostic Procedures.****MW (kDa):**  
13.7**UniProt ID:**  
#P07750**Entrez-Gene Id:**  
16189

## Background

Interleukin-4 (IL-4) is produced by T cells, NK T cells,  $\gamma\delta$  cells, and mast cells (1). Target cells include B cells, T cells, and macrophages (1). IL-4 induces the polarization of naïve helper T cells into the Th2 phenotype (1,2). IL-4 also promotes B cell proliferation, antibody class switching, and the production of other Th2 cytokines, including IL-5 and IL-9. IL-4 induced Th2 polarization is important in developing humoral immunity against extracellular pathogens (1) and is involved in the development of allergy and asthma (3). IL-4 binds to two distinct receptors, the Type I receptor and Type II receptor. Type I receptor is a heterodimer consisting of the IL-4R $\alpha$  chain and the common gamma chain,  $\gamma_c$  (4,5). Type II receptor, which is shared with IL-13, is a heterodimer of IL-4R $\alpha$  and IL-13R $\alpha_1$ . Signaling initiated via the Type I receptor activates the Jak1/Stat6, Jak3, and PI3K/Akt pathways (4). The Type II receptor activates the Jak1/Stat6 and Tyk2/Stat3 pathways (4).

## Endotoxin

Endotoxin levels are less than or equal to 1 EU / 1 µg mL-4.

## Purity

A greater than or equal to 95% purity was determined by SDS-PAGE.

## Source / Purification

Recombinant mouse IL-4 was expressed in *E. coli* and is supplied in a lyophilized form.

## Bioactivity

The bioactivity of recombinant mL-4 was determined in an HT-2 cell proliferation assay. The ED<sub>50</sub> of each lot is less than or equal to 20 ng/mL.

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## Background References

1. Corthay, A. (2006) *Scand J Immunol* 64, 93-6.
2. Wynn, T.A. (2003) *Annu Rev Immunol* 21, 425-56.
3. Nakajima, H. and Takatsu, K. (2007) *Int Arch Allergy Immunol* 142, 265-73.
4. Wills-Karp, M. and Finkelman, F.D. (2008) *Sci Signal* 1, pe55.
5. Mueller, T.D. et al. (2002) *Biochim Biophys Acta* 1592, 237-50.

## Cross-Reactivity Key

**H:** human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster  
**X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse  
**GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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