Revision 8

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Human Interleukin-4 (hIL-4)

Cell Signaling TECHNOLOGY®

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MW (kDa):	UniProt ID:	Entrez-Gene Id:
20	#P05112	3565

Background

IL-4 is produced by T cells, NK T cells, γδ cells, and mast cells (1). Target cells include B cells, T cells, and macrophages (1). IL-4 induces differentiation of naive T cells into the TH2 phenotype. IL-4 also promotes B cell proliferation, antibody isotype switching and expression 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 (2). IL-4 binds to two distinct receptors, the type I receptor and type II receptor. Type I receptor is a heterodimer consisting of IL-4Rα chain and the common gamma chain, γc (3,4). Type II receptor, which is shared with IL-13, is a heterodimer of IL-4Rα and IL-13Rα1. Signaling initiated via type I receptor results in the activation of Jak1/Stat6, Jak3 and the PI3K/Akt pathways (3). The type II receptor activates the Jak1/Stat6 and the Tyk2/Stat3 pathways (3).

Endotoxin

Less than 0.01 ng endotoxin/1 µg hIL-4.

Purity

>98% as determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hIL-4. All lots are greater than 98% pure.

Source / Purification

Recombinant human IL-4 (hIL-4) His25-Ser153 (Accession #AF395008) was expressed in human 293 cells at Cell Signaling Technology.

Bioactivity

The bioactivity of recombinant hIL-4 was determined in a TF-1 cell proliferation assay. The ED50 of each lot is between 80-250 pg/ml.

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Background References

1. Corthay, A. (2006) *Scand J Immunol* 64, 93-6.
2. Nakajima, H. and Takatsu, K. (2007) *Int Arch Allergy Immunol* 142, 265-73.
3. Wills-Karp, M. and Finkelman, F.D. (2008) *Sci Signal* 1, pe55.
4. 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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