

Revision 2

Store at -20C

#8919

# Human Interleukin-4 (hIL-4)

10 µg

**Cell Signaling**  
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## For Research Use Only. Not For Use In Diagnostic Procedures.

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

### Background

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 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-4R $\alpha$  chain and the common gamma chain,  $\gamma c$  (3,4). Type II receptor, which is shared with IL-13, is a heterodimer of IL-4R $\alpha$  and IL-13R $\alpha 1$ . 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.

### Storage

Stable in lyophilized state at -20°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles. *Maintain sterility. Storage at -20°C should be in a manual defrost freezer.*

### 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.

### APPLICATIONS KEY

**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  
Rab: rabbit All: all species expected

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## Human Interleukin-4 (hIL-4)

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