

Cytokines

Human Recombinant IL-4



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Interleukin 4

Catalog #	78045.1	20 µg
	78045	100 µg
	78045.3	500 µg
	78045.2	1000 µg

Product Description

Human Interleukin 4 (IL-4) is important for immune responses to helminth infection as well as in allergic responses (Olpihant et al.). The IL-4 receptor consists of a heterodimer of IL-4Ra and common gamma chain. IL-4 receptor engagement leads to the activation of JAK1/3 and the recruitment of STAT6 and IRS1/2 (Nelms et al.). IL-4 drives immunoglobulin class switching in B cells (to IgE, IgG4), mast cell hyperplasia, mucus production, and the differentiation of naïve T cells into T helper type 2 (Th2) cells, which produce IL-4, IL-5, IL-10, and IL-13 (Bao et al.; Nelms et al.; Olpihant et al.). In addition to Th2 cells, IL-4 is produced by CD4+ NK T cells, γ/δ T cells, activated basophils, eosinophils, and mast cells. Human IL-4 does not cross-react with mouse cells (Park et al.).

Product Information

Alternative Names:	B cell stimulating factor, BCDF, BCGF, BSF-1, Interleukin-4
Accession Number:	P05112
Amino Acid Sequence:	MHKCDITLQE IIKTLNSLTE QKTLCTELTV TDIFAASKNT TEKETFCRAA TVLRQFYSHH EKDTRCLGAT AQQFHRHKQL IRFLKRLDRN LWGLAGLNSC PVKEANQSTL ENFLERLKI MREKYSKCSS
Predicted Molecular Mass:	15.1 kDa
Species:	Human
Cross Reactivity:	Species-specific
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

Specifications

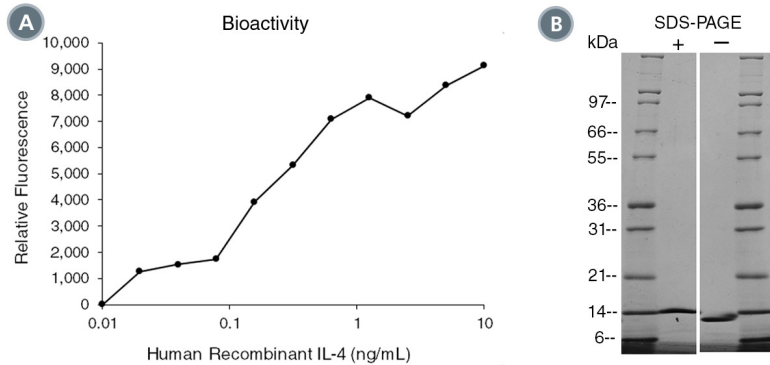
Activity:	The EC50 is ≤ 0.25 ng/mL as determined by a cell proliferation assay using TF-1 cells. The specific activity is approximately 1.4×10^4 IU/ μ g as calibrated against the human recombinant IL-4 WHO International Standard (NIBSC code: 88/656).
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/ μ g protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C .
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at $2 - 8^{\circ}\text{C}$ for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant IL-4 was tested by its ability to promote the proliferation of TF-1 cells. Cell proliferation was measured after 72 hours of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 0.16 - 0.24 ng/mL.

(B) 1 µg of Human Recombinant IL-4 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IL-4 has a predicted molecular mass of 15.1 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

- Bao et al. (2015) The differential expression of IL-4 and IL-13 and its impact on type-2 immunity. *Cytokine* 75: 25–37.
 Nelms K et al. (1999) The IL-4 receptor: signaling mechanisms and biologic functions. *Annu Rev Immunol* 17: 701–38.
 Oliphant CJ et al. (2011) Insights into the initiation of type 2 immune responses. *Immunology* 134(4): 378–85.
 Park LS et al. (1987) Characterization of the human B cell stimulatory factor 1 receptor. *J Exp Med* 166: 476–88.

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