

DESCRIPTION	
Species Reactivity	Cotton Rat
Specificity	Detects recombinant cotton rat IL-4 in ELISAs and Western blots. In sandwich immunoassays, no cross-reactivity or interference with recombinant human IL-4, recombinant rat IL-4, recombinant porcine IL-4, recombinant feline IL-4, recombinant canine IL-4, recombinant human IL-4 Ra, or recombinant mouse IL-4 Ra was observed.
Source	Monoclonal Mouse IgG ₁ Clone # 143514
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant cotton rat IL-4 Cys21-Phe147 Accession # AAL18820
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

APPLICATIONS		
<i>Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.</i>		
	Recommended Concentration	Sample
Western Blot	1 µg/mL	Recombinant Cotton Rat IL-4 (Catalog # 584-R4) under non-reducing conditions only
Cotton Rat IL-4 Sandwich Immunoassay		Reagent
ELISA Capture	2-8 µg/mL	Cotton Rat IL-4 Antibody (Catalog # MAB584)
ELISA Detection	0.1-0.4 µg/mL	Cotton Rat IL-4 Biotinylated Antibody (Catalog # BAF584)
Standard		Recombinant Cotton Rat IL-4 (Catalog # 584-R4)

PREPARATION AND STORAGE	
Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Interleukin-4 (IL-4), also known as B cell-stimulatory factor-1, is a monomeric, approximately 13 kDa-18 kDa Th2 cytokine that shows pleiotropic effects during immune responses (1-3). It is a glycosylated polypeptide that contains three intrachain disulfide bridges and adopts a bundled four α-helix structure (4). Cotton rat IL-4 is synthesized with a 24 amino acid (aa) signal sequence. Mature cotton rat IL-4 shares 41%, 44%, 57%, and 68% aa sequence identity with bovine, human, mouse, and rat IL-4, respectively. IL-4 exerts its effects through two receptor complexes (5, 6). The type I receptor, which is expressed on hematopoietic cells, is a heterodimer of the ligand binding IL-4 Rα and the common γ chain (a shared subunit of the receptors for IL-2, -7, -9, -15, and -21). The type II receptor on nonhematopoietic cells consists of IL-4 Rα and IL-13 Rα1. The type II receptor also transduces IL-13 mediated signals. IL-4 is primarily expressed by Th2-biased CD4⁺ T cells, mast cells, basophils, and eosinophils (1, 2). It promotes cell proliferation, survival, and immunoglobulin class switch to IgE in B cells, acquisition of the Th2 phenotype by naïve CD4⁺ T cells, priming and chemotaxis of mast cells, eosinophils, and basophils, and the proliferation and activation of epithelial cells (7-10). IL-4 plays a dominant role in the development of allergic inflammation and asthma (9, 11).

References:

1. Benczik, M. and S.L. Gaffen (2004) *Immunol. Invest.* **33**:109.
2. Chomarat, P. and J. Banchereau (1998) *Int. Rev. Immunol.* **17**:1.
3. Accession # AAL18820.
4. Redfield, C. *et al.* (1991) *Biochemistry* **30**:11029.
5. Mueller, T.D. *et al.* (2002) *Biochim. Biophys. Acta* **1592**:237.
6. Nelms, K. *et al.* (1999) *Annu. Rev. Immunol.* **17**:701.
7. Paludan, S.R. (1998) *Scand. J. Immunol.* **48**:459.
8. Corthay, A. (2006) *Scand. J. Immunol.* **64**:93.
9. Ryan, J.J. *et al.* (2007) *Crit. Rev. Immunol.* **27**:15.
10. Grone, A. (2002) *Vet. Immunol. Immunopathol.* **88**:1.
11. Rosenberg, H.F. *et al.* (2007) *J. Allergy Clin. Immunol.* **119**:1303.