

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human IL-4 in direct ELISAs.
Source	Monoclonal Mouse IgG _{2A} Clone # 1067629
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese Hamster Ovary cell line, CHO-derived human IL-4 His25-Ser153 Accession # P05112
Conjugate	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

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.

Intracellular Staining by Flow Cytometry	Titration recommended for optimal concentration with starting range of 0.1-1 µg/1 million cells. Sample used for this experiment was PBMCs lymphocytes.
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PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Use a manual defrost freezer and avoid repeated freeze-thaw cycles. • 12 months, 2 to 8 °C under sterile conditions after opening.

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). Human IL-4 is synthesized with a 24 aa signal sequence. Alternate splicing generates an isoform with a 16 aa internal deletion. Mature human IL-4 shares 55%, 39% and 43% aa sequence identity with bovine, mouse, and rat IL-4, respectively. Human, mouse, and rat IL-4 are species-specific in their activities (5-7). IL-4 exerts its effects through two receptor complexes (8, 9). 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 IgG4 and IgE in human 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 (10-13). IL-4 plays a dominant role in the development of allergic inflammation and asthma (12, 14).

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. Yokota, T. *et al.* (1986) Proc. Natl. Acad. Sci. **83**:5894.
4. Redfield, C. *et al.* (1991) Biochemistry **30**:11029.
5. Ramirez, F. *et al.* (1988) J. Immunol. Meth. **221**:141.
6. Leitenberg, D. and T.L. Feldbush (1988) Cell. Immunol. **111**:451.
7. Mosman, T.R. *et al.* (1987) J. Immunol. **138**:1813.
8. Mueller, T.D. *et al.* (2002) Biochim. Biophys. Acta **1592**:237.
9. Nelms, K. *et al.* (1999) Annu. Rev. Immunol. **17**:701.
10. Paludan, S.R. (1998) Scand. J. Immunol. **48**:459.
11. Corthay, A. (2006) Scand. J. Immunol. **64**:93.
12. Ryan, J.J. *et al.* (2007) Crit. Rev. Immunol. **27**:15.
13. Grone, A. (2002) Vet. Immunol. Immunopathol. **88**:1.
14. Rosenberg, H.F. *et al.* (2007) J. Allergy Clin. Immunol. **119**:1303.

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