

DESCRIPTION

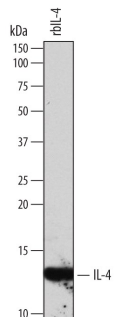
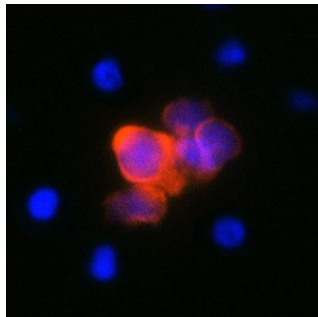
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| Species Reactivity | Bovine |
| Specificity | Detects bovine IL-4 in direct ELISAs and Western blots. In direct ELISAs, less than 25% cross-reactivity with recombinant porcine, canine, rhesus, cotton rat, equine, or rabbit IL-4 is observed and no cross-reactivity with recombinant human, mouse, rat, or feline IL-4 is observed. |
| Source | Monoclonal Mouse IgG _{2B} Clone # 701214 |
| Purification | Protein A or G purified from hybridoma culture supernatant |
| Immunogen | <i>E. coli</i> -derived recombinant bovine IL-4 His25-Cys135 Accession # P30367.2 |
| 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 as a 0.2 µm filtered solution in PBS. |

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.

| | Recommended Concentration | Sample |
|----------------------------|----------------------------------|---------------|
| Western Blot | 2 µg/mL | See Below |
| Immunocytochemistry | 8-25 µg/mL | See Below |

DATA

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| <p>Western Blot</p>  <p>Detection of Bovine IL-4 by Western Blot. Western blot shows Recombinant Bovine IL-4 (Catalog # 2469-BL) (10 ng/lane). PVDF membrane was probed with 2 µg/mL of Mouse Anti-Bovine IL-4 Monoclonal Antibody (Catalog # MAB2469) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF007). A specific band was detected for IL-4 at approximately 12 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.</p> | <p>Immunocytochemistry</p>  <p>IL-4 in Bovine PBMCs. IL-4 was detected in immersion fixed bovine peripheral blood mononuclear cells (PBMCs) stimulated with concanavalin A using Mouse Anti-Bovine IL-4 Monoclonal Antibody (Catalog # MAB2469) at 25 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cell cytoplasm. View our protocol for Fluorescent ICC Staining of Non-adherent Cells.</p> |
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PREPARATION AND STORAGE

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| Reconstitution | Sterile PBS to a final concentration of 0.5 mg/mL. |
| 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). Bovine IL-4 is synthesized with a 24 amino acid (aa) signal sequence. Alternate splicing generates two additional isoforms with internal deletions (5). Mature bovine IL-4 shares 60%, 91%, 93%, 78%, 55%, 39%, and 41% aa sequence identity with equine, goat, ovine, porcine, human, mouse, and rat IL-4, respectively. IL-4 exerts its effects through two receptor complexes (6, 7). The type I receptor, which is expressed on hematopoietic cells, is a heterodimer of the ligand binding IL-4 R α 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 R α and IL-13 R α 1. 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 naive CD4⁺ T cells, priming and chemotaxis of mast cells, eosinophils, and basophils, and the proliferation and activation of epithelial cells (8-11). IL-4 plays a dominant role in the development of allergic inflammation and asthma (10, 12).

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. Heussler, V.T. *et al.* (1992) *Gene* **114**:273.
4. Redfield, C. *et al.* (1991) *Biochemistry* **30**:11029.
5. Waldvogel, A.S. *et al.* (2004) *Vet. Immunol. Immunopathol.* **97**:53.
6. Mueller, T.D. *et al.* (2002) *Biochim. Biophys. Acta* **1592**:237.
7. Nelms, K. *et al.* (1999) *Annu. Rev. Immunol.* **17**:701.
8. Paludan, S.R. (1998) *Scand. J. Immunol.* **48**:459.
9. Corthay, A. (2006) *Scand. J. Immunol.* **64**:93.
10. Ryan, J.J. *et al.* (2007) *Crit. Rev. Immunol.* **27**:15.
11. Grone, A. (2002) *Vet. Immunol. Immunopathol.* **88**:1.
12. Rosenberg, H.F. *et al.* (2007) *J. Allergy Clin. Immunol.* **119**:1303.