

**DESCRIPTION**

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human IL-13 in direct ELISAs.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 32116
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human IL-13 Gly35-Asn146 Accession # P35225
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the antibody by the LAL method.
<b>Formulation</b>	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**

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.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Flow Cytometry</b>	2.5 µg/10 <sup>6</sup> cells	See Below
<b>Human IL-13 Sandwich Immunoassay</b>		<b>Reagent</b>
<b>ELISA Capture</b>	2-8 µg/mL	Human IL-13 Antibody (Catalog # MAB213)
<b>ELISA Detection</b>	0.1-0.4 µg/mL	Human IL-13 Biotinylated Antibody (Catalog # BAF213)
<b>Standard</b>		Recombinant Human IL-13 (Catalog # 213-ILB)
<b>CyTOF-ready</b>	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	
<b>Neutralization</b>	Measured by its ability to neutralize IL-13-induced proliferation in the TF-1 human erythroleukemic cell line. Kitamura, T. <i>et al.</i> (1989) <i>J. Cell Physiol.</i> <b>140</b> :323. The Neutralization Dose (ND <sub>50</sub> ) is typically 0.15-0.75 µg/mL in the presence of 10 ng/mL Recombinant Human IL-13.	

**DATA**

**Flow Cytometry**

**Detection of IL-13 in Human PBMCs by Flow Cytometry.** Human peripheral blood mononuclear cells (PBMCs) treated with 5 ng/mL Recombinant Human IL-4 (Catalog # 204-IL) and 10 µg/mL Goat Anti-Human IFN-γ Antigen Affinity-purified Polyclonal Antibody (Catalog # AF-285-NA) for 3 days were stained with Mouse Anti-Human IL-13 Monoclonal Antibody (Catalog # MAB213) followed by Allophycocyanin-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # F0101B) and Mouse Anti-Human CD4 PE-conjugated Monoclonal Antibody (Catalog # FAB3791P). Quadrant markers were set based on control antibody staining (Catalog # MAB002).

**Neutralization**

**Cell Proliferation Induced by IL-13 and Neutralization by Human IL-13 Antibody.** Recombinant Human IL-13 (Catalog # 213-ILB) stimulates proliferation in the TF-1 human erythroleukemic cell line in a dose-dependent manner (orange line). Proliferation elicited by Recombinant Human IL-13 (10 ng/mL) is neutralized (green line) by increasing concentrations of Mouse Anti-Human IL-13 Monoclonal Antibody (Catalog # MAB213). The ND<sub>50</sub> is typically 0.15-0.75 µg/mL.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	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
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

IL-13 is a 17 kDa immunoregulatory cytokine that plays a key role in the pathogenesis of allergic asthma and atopy. It is secreted by Th1 and Th2 CD4<sup>+</sup> T cells, NK cells, visceral smooth muscle cells, eosinophils, mast cells, and basophils (1-3). IL-13 circulates as a monomer with two internal disulfide bonds that contribute to a bundled four  $\alpha$ -helix configuration (4, 5). Mature human IL-13 shares 57%, 59%, and 94% amino acid sequence identity with mouse, rat, and rhesus IL-13, respectively. Despite the low homology, it exhibits cross-species activity between human, mouse, and rat (6, 7). IL-13 has diverse activities on numerous cell types (8). On macrophages, IL-13 suppresses the production of proinflammatory cytokines and other cytotoxic substances. On B cells, IL-13 induces immunoglobulin class switching to IgE, upregulates the expression of MHC class II, CD71, CD72, and CD23, and costimulates proliferation. IL-13 upregulates IL-6 while downregulating IL-1 and TNF- $\alpha$  production by fibroblasts and endothelial cells. IL-13 binds with low affinity to IL-13 R $\alpha$ 1, triggering IL-13 R $\alpha$ 1 association with IL-4 R $\alpha$ . This high affinity receptor complex also functions as the type 2 IL-4 receptor complex (9, 10). Additionally, IL-13 binds with high affinity to IL-13 R $\alpha$ 2 which is expressed intracellularly, on the cell surface, and as a soluble molecule (11-14). IL-13 R $\alpha$ 2 regulates the bioavailability of both IL-13 and IL-4 and is over-expressed in glioma and several bronchial pathologies (10, 15, 16). Compared to wild type IL-13, the atopy-associated R110Q variant of IL-13 elicits increased responsiveness from eosinophils that express low levels of IL-13 R $\alpha$ 2 (17).

**References:**

1. Wills-Karp, M. (2004) *Immunol. Rev.* **202**:175.
2. Nakajima H. and K. Takatsu (2007) *Int. Arch. Allergy Immunol.* **142**:265.
3. McKenzie, A.N. *et al.* (1993) *Proc. Natl. Acad. Sci. USA* **90**:3735.
4. Moy, F.J. *et al.* (2001) *J. Mol. Biol.* **310**:219.
5. Eisenmesser, E.Z. *et al.* (2001) *J. Mol. Biol.* **310**:231.
6. Ruetten, H. and C. Thiemermann (1997) *Shock* **8**:409.
7. Lakkis, F.G. *et al.* (1997) *Biochem. Biophys. Res. Commun.* **235**:529.
8. Wynn, T.A. (2003) *Annu. Rev. Immunol.* **21**:425.
9. Andrews, A.L. *et al.* (2002) *J. Biol. Chem.* **277**:46073.
10. Tabata, Y. *et al.* (2007) *Curr. Allergy Asthma Rep.* **7**:338.
11. Chiamonte, M.G. *et al.* (2003) *J. Exp. Med.* **197**:687.
12. Daines, M.O. and G.K. Hershey (2002) *J. Biol. Chem.* **277**:10387.
13. Matsumura, M. *et al.* (2007) *Biochem. Biophys. Res. Commun.* **360**:464.
14. Tabata, Y. *et al.* (2007) *J. Immunol.* **177**:7905.
15. Andrews, A.L. *et al.* (2006) *J. Allergy Clin. Immunol.* **118**:858.
16. Joshi, B.H. *et al.* (2006) *Vitam. Horm.* **74**:479.
17. Andrews, A-L. *et al.* (2007) *J. Allergy Clin. Immunol.* **120**:91.