

# Human Interleukin-13 (hIL-13)

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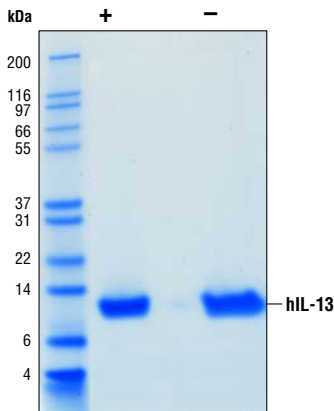
**For Research Use Only. Not For Use In Diagnostic Procedures.**

**Source:** Recombinant human IL-13 (hIL-13) Gly21-Asn132 (Accession #AAK53823) was produced in *E. coli* at Cell Signaling Technology.

**Molecular Characterization:** Recombinant hIL-13 does not have a Met on the amino terminus and has a calculated MW of 12,344. DTT-reduced and non-reduced protein migrate as 12 kDa polypeptides with non-reduced protein having slightly greater mobility due to intramolecular cystines. The expected amino-terminal GPVPP of recombinant hIL-13 was verified by amino acid sequencing.

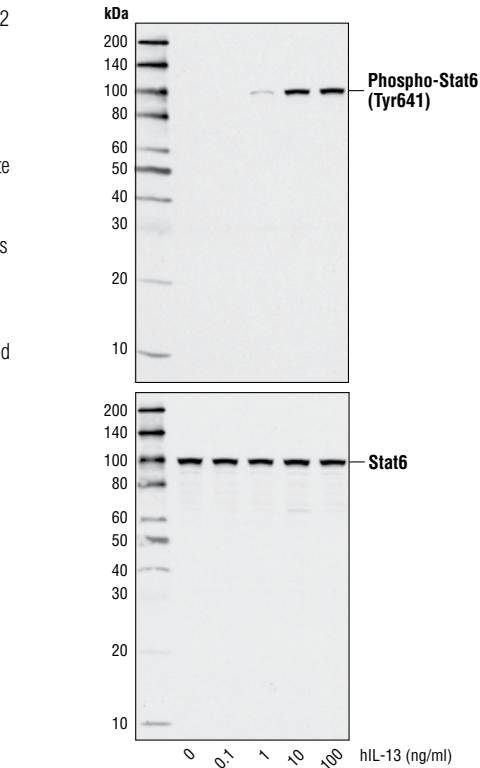
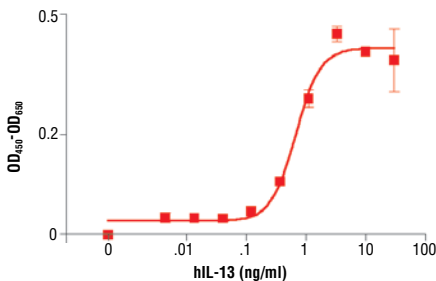
**Endotoxin:** Less than 0.01 ng endotoxin/1 $\mu$ g hIL-13.

**Purity:** >98% as determined by SDS-PAGE of 6  $\mu$ g reduced (+) and non-reduced (-) recombinant hIL-13. All lots are greater than 98% pure.



The purity of recombinant hIL-13 was determined by SDS-PAGE of 6  $\mu$ g reduced (+) and non-reduced (-) recombinant hIL-13 and staining overnight with Coomassie Blue.

**Bioactivity:** The bioactivity of recombinant hIL-13 was determined in a TF-1 cell proliferation assay. The ED<sub>50</sub> of each lot is between 0.6–1.2 ng/ml.



Western blot analysis of extracts from TF-1 cells, untreated or treated with hIL-13 for 20 minutes, using Phospho-Stat6 (Tyr641) Antibody #9361 (upper) and Stat6 Antibody #9362 (lower).

◀ The proliferation of TF-1 cells treated with increasing concentrations of hIL-13 was assessed. After 48 hour treatment with hIL-13, cells were incubated with a tetrazolium salt and the OD<sub>450</sub> - OD<sub>650</sub> was determined.

**Formulation:** With carrier: Lyophilized from a 0.22  $\mu$ m filtered solution of PBS, pH 7.2 containing 20  $\mu$ g BSA per 1  $\mu$ g hIL-13.

Carrier free: Lyophilized from a 0.22  $\mu$ m filtered solution of PBS, pH 7.2.

**Reconstitution:**

With carrier: Add sterile PBS or PBS containing 1% bovine or human serum albumin or 5–10% FBS to a final hIL-13 concentration of greater than 50  $\mu$ g/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Carrier free: Add sterile PBS or PBS containing protein to minimize absorption of hIL-13 to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock hIL-13 should be greater than 50  $\mu$ g/ml.

**Storage:** Stable in lyophilized state at -20°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles.

*Maintain sterility. Storage at -20°C should be in a manual defrost freezer.*

**Applications:** Optimal concentration for the desired application should be determined by the user.

**Background:** IL-13 is produced by T cells and is important in the TH2 response. IL-13 targets include B cells, eosinophils, fibroblasts, mast cells and macrophages (1–3). IL-13 binds specifically to IL-13R $\alpha$ 1 that complexes with IL-4R $\alpha$  to form the Type II IL-4R. Jak1 and TYK2 are activated and signal through Stat3 and Stat6 (6). IL-13R $\alpha$ 2 is a different gene product, lacks the intracellular domain, does not complex with IL-4R $\alpha$  and does not signal (1,6,7). The extracellular domain of IL-13R $\alpha$ 2 is often elevated in diseased states. IL-13 plays key roles in airway hyper-responsiveness (AHR) of allergic asthma (1,4,5) and modulates resistance to parasitic organisms (1).

**Background References:**

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- (2) Katz, Y. et al. (1995) *Clin Exp Immunol* 101, 150–6.
- (3) McKenzie, A.N. et al. (1993) *Proc Natl Acad Sci USA* 90, 3735–9.
- (4) Wills-Karp, M. et al. (1998) *Science* 282, 2258–61.
- (5) Nakajima, H. and Takatsu, K. (2007) *Int Arch Allergy Immunol* 142, 265–73.
- (6) Wills-Karp, M. and Finkelman, F.D. (2008) *Sci Signal* 1, pe55.
- (7) Mentink-Kane, M.M. et al. (2004) *Proc Natl Acad Sci USA* 101, 586–90.