Miltenyi Biotec

Human IL-13
research grade

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1. Description

Products

Human IL-13, research grade.

Recombinant human interleukin 13.

Content in µg	Order no.
10	130-112-409
25	130-112-410

Biological activity

The ED_{50} is ≤5 ng/mL corresponding to an activity of ≥2×10^5 U/mg.

▲ **Note:** The ED_{50} is determined by proliferation assay using TF-1 cells according to Kitamura *et al.*[2] The proliferation assay was calibrated with the reference reagent for human IL-13 (NIBSC code 94/622) provided by the WHO/National Institute for Biological Standards and Control.

Primary structure

Single non-glycosylated polypeptide chain without N-terminal methionine (114 amino acid residues).

Molecular mass

12.5 kDa.

Source

Produced in *E. coli*.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

None.

Purity

>95% as determined by SDS-PAGE analysis.

Endotoxin level

Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage

Lyophilized Human IL-13, research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution

It is recommended to reconstitute lyophilized Human IL-13, research grade with deionized sterile-filtered water to a final concentration of 0.1 - 1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

Interleukin 13 (IL-13) is an immunoregulatory protein, which shares similarity in structure and function with IL-4. IL-13 is mainly secreted by TH2 cells, as well as mast cells and NK cells, and binds a multi-subunit receptor, including the alpha chain of the IL-4 receptor, which downstream activates the signal transducer and activator of transcription 6 (STAT-6). Although IL-13 is involved in the pathogenesis of airway diseases such as asthma, it also plays a protective role for the mucosa, via induction of matrix metalloproteinases (MMPs) and other anti-inflammatory effects. Similarly to IL-4, IL-13 induces humoral responses favoring B cell proliferation and isotype switching to IgE, whereas, on monocytes and macrophages, it counteracts the effects of IL-1β, TNF-α, IL-6, by inhibiting the secretion of inflammatory cytokines and increasing IL-1RA expression. IL-13 acts on hematopoietic differentiation and can synergize with IL-2 in the activation of IFN-γ mediated killer activity of lymphokine activated killer (LAK) cells. The protein sequences of human and mouse IL-13 share 58% identity and are cross species reactive.

1.2 Applications

Human IL-13 can be used for a variety of applications, including:

- Inhibition of monocyte and macrophage activation.
- B cell activation.
- NK cell and LAK cell stimulation.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

1. Diedrich, C. R. *et al.* (2013) Monocyte-derived IL-5 reduces TNF production by Mycobacterium tuberculosis-specific CD4 T cells during SIV/M. tuberculosis coinfection. J. Immunol. 190 (12): 6320–6328.
2. Kitamura, T. *et al.* (1989) Establishment and characterization of a unique human cell line that proliferates dependently on GM-CSF, IL-3, or erythropoietin. J. Cell. Physiol. 140: 323–334.
3. Borriello, F. *et al.* (2015) IL-3 synergizes with basophil-derived IL-4 and IL-13 to promote the alternative activation of human monocytes. Eur. J. Immunol. 45 (7): 2042–2051.

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