Miltenyi Biotec

Mouse IL-23
research grade

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1. Description

Products

Mouse IL-23, research grade.

Recombinant mouse interleukin 23.

Content in µg	Order no.
5	130-096-676
25	130-096-677

Biological activity

The ED_{50} is ≤0.25 ng/mL corresponding to an activity of ≥4×10^6 U/mg.

▲ **Note:** The ED_{50} is determined by the ability of mIL-23 to induce dose-dependent IL-17 seretion by mouse splenocytes activated with 10 ng/mL PMA.[4]

Primary structure

Glycosylated single-chain polypeptide, p40 and p19 fused by a flexible linker region (516 amino acid residues).

Molecular mass

58 kDa (calculated).

70 kDa (SDS-PAGE under reducing conditions).

Source

Produced in HEK293 cells.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

Mannitol and trehalose.

Purity

>97% 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 Mouse IL-23, 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 Mouse IL-23, research grade with deionized sterile-filtered water to a final concentration of 0.05–1.0 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

IL-23 is a covalently linked heterodimeric cytokine, which is closely related to IL-12. Macrophages and dendritic cells are the major sources of both IL-12 and IL-23, which act on receptors primarily expressed by T cells, NK cells, and NKT cells. IL-23 consists of the p40 subunit shared with IL-12 and the 19 kDa protein p19 that is unique to IL-23. Its effects are mediated by a receptor composed of IL-12 receptor subunit β1 and an IL-23 specific subunit. IL-12 and IL-23 show different functions although both contain the p40 subunit. While IL-12 drives the development of TH1 cells, IL-23 mediates the full differentiation and maintenance of TH17 cells. IL-23 stimulates $CD4^+$ T cells and promotes the production of pro-inflammatory cytokines. As a key cytokine in the survival and proliferation of TH17 cells, IL-23 has central roles in autoimmune diseases and promotes chronic inflammation. It has been shown that single chain fusion proteins of naturally heterodimeric cytokines such as IL-12 or IL-23 are bioactive *in vitro* and *in vivo*.

1.2 Applications

Mouse IL-23 can be used for a variety of applications, including:

- *In vitro* differentiation of $CD4^+$ T cells towards TH17 cells and proliferation of TH17 cells.
- Exploration of the role of IL-23 in autoimmune diseases or inflammatory bowel diseases.
- Investigation of IL-23-mediated molecular signaling pathways.

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

2. References

1. Damsker, J.M. *et al.* (2010) TH1 and TH17 cells: adversaries and collaborators. Ann. N. Y. Acad. Sci. 1183: 211–221.
2. Lieschke, G.J. *et al.* (1997) Bioactive murine and human interleukin-12 fusion proteins which retain antitumor activity *in vivo*. Nat. Biotechnol. 15: 35–40.
3. Miller, J.M. *et al.* (2010) Vesicular stomatitis virus modified with single chain IL-23 exhibits oncolytic activity against tumor cells *in vitro* and *in vivo*. Int. J. Infereron Cytokine Mediator Res. 2010: 63–72.
4. Aggarwal, S. *et al.* (2003) Interleukin-23 promotes a distinct CD4 T cell activation state characterized by the production of interleukin-17. J. Biol. Chem. 278: 1910–1914.

Refer to www.miltenyibiotec.com for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

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