

DESCRIPTION

Source Human embryonic kidney cell, HEK293-derived human IL-12 protein
Arg23-Ser219 (Cys96Ser)
Accession # P29459.2

N-terminal Sequence Analysis Arg23

Predicted Molecular Mass 23 kDa

SPECIFICATIONS

SDS-PAGE 28-37 kDa, under reducing conditions.

Activity Measured by its ability to induce IFN-gamma secretion in NK-92 human natural killer lymphoma cells, the concentration of Recombinant Human IL-12p35 (C96S) Monomer (Catalog # 11209-IL) that produces 50% of the response is 0.300-3.00 ng/mL when Recombinant Human IL-12p40 Monomer (Catalog # 309-IL) is present at 0.25 µg/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 250 µg/mL in PBS.

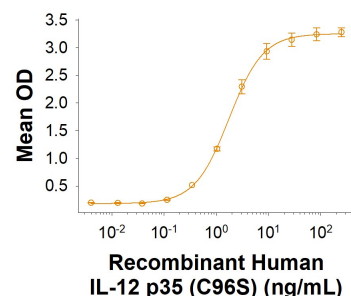
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

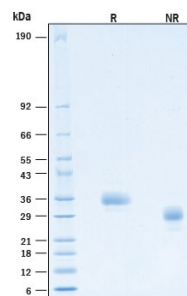
DATA

Bioactivity



Recombinant Human IL-12 p35 (C96S) Protein Bioactivity. Measured by its ability to induce IFN-gamma secretion in NK-92 human natural killer lymphoma cells, the concentration of Recombinant Human IL-12 p35 (C96S) Monomer (Catalog # 11209-IL) that produces 50% of the response is 0.300-3.00 ng/mL when Recombinant Human IL-12 p40 Monomer (Catalog # 309-IL) is present at 0.25 µg/mL.

SDS-PAGE



Recombinant Human IL-12 p35 (C96S) Protein SDS-PAGE. 2 µg/lane of Recombinant Human IL-12 p35 (C96S) Protein (Catalog # 11209-IL) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 28-37 kDa.

BACKGROUND

Interleukin 12, also known as natural killer cell stimulatory factor (NKSF) or cytotoxic lymphocyte maturation factor (CLMF), is a pleiotropic cytokine originally identified in the medium of activated human B lymphoblastoid cell lines (1). The p40 subunit of IL-12 has been shown to have extensive amino acid sequence homology to the extracellular domain of the human IL-6 receptor while the p35 subunit shows distant but significant sequence similarity to IL-6, G-CSF, and chicken MGF (2, 3). These observations have led to the suggestion that IL-12 might have evolved from a cytokine/soluble receptor complex. Human and murine IL-12 share 70% and 60% amino acid sequence homology in their p40 and p35 subunits, respectively. In addition to be a subunit of the proinflammatory cytokine IL-12, p35 is also a subunit of IL-35, an immune suppressor (4). p35 subunit is broadly expressed while p40 subunit is limited to hematopoietic cells (5). Secretion of p35 is dependent on p40 to ensure correct folding (6). Recent studies show that p40 and p35 which are expressed from two different cell lines can assemble to form functional IL-12 *in vitro* (7). When functions alone, p35 subunit induces expansion of IL-10 and IL-35 expressing regulatory B cells and inhibits neuroinflammation and ameliorates autoimmune encephalomyelitis (8-9).

References:

1. Gubler, U. *et al.* (1991) *Proc. Natl. Acad. Sci.* **88**:4143.
2. Gearing, D. *et al.* (1991) *Cell* **66**:9.
3. Merberg, D. *et al.* (1992) *Immunology Today* **13**:78.
4. Devergne, O. *et al.* (1997) *Proc Natl Acad Sci U.S.A.* **94**:1204.
5. Carra, G. *et al.* (2000) *J. Immunol* **164**:4752.
6. Reitberger, S. *et al.* (2017) *J. Biol. Chem* **292**:8073.
7. Gerber, A.N. *et al.* (2021) *Cell Rep.* **37**:109816.
8. Dambuza, I.M. *et al.* (2017) *Nat Commun.* **8**:719.
9. Choi, J.K. *et al.* (2017) *Front Immunol.* **8**:1258.