Recombinant Human IL-12

Catalog Number: 219-IL/CF

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 21 (baculovirus)-derived

Human IL-12 p40
(Ile23-Ser328)
Accession # P29460

Human IL-12 p35
(Arg23-Ser219)
Accession # P29459

N-terminus C-terminus

N-terminal Sequence Analysis	Ile23 (p40) & Arg23 (p35)
Structure / Form	Disulfide-linked heterodimer
Predicted Molecular Mass	34.7 kDa (p40) & 22.5 kDa (p35)

SPECIFICATIONS

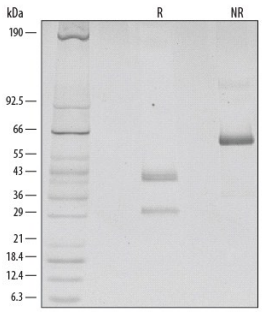
SDS-PAGE	41 kDa (p40) & 29 kDa (p35), reducing conditions
Activity	Measured in a cell proliferation assay using PHA-stimulated human T lymphoblasts. Symons, J.A. *et al.* (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. *et al.* (eds): IRL Press. 272. The ED_{50} for this effect is typically 0.01-0.05 ng/mL. The specific activity of Recombinant Human IL-12 is approximately 1.1 x 10^4 units/µg, which is calibrated against recombinant human IL-12 WHO Standard (NIBSC code: 95/544).
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>97%, 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. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute 5 µg vials at 50 µg/mL in sterile PBS. Reconstitute 25 µg or larger vials at 100 µg/mL in sterile 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.

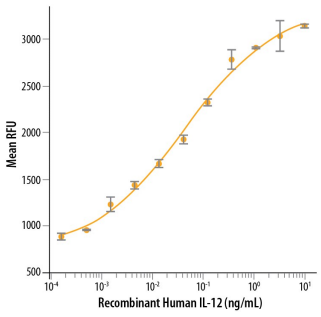
DATA

SDS-PAGE



1 µg/lane of Recombinant Human IL-12 was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining. Single bands were observed at 41 kDa (p40) and 29 kDa (p35), under reducing conditions, and at 60 kDa under non-reducing conditions.

Bioactivity



Recombinant Human IL-12 (Catalog # 219-IL/CF) stimulates proliferation in PHA-activated human T lymphoblasts. The ED_{50} for this effect is typically 0.01-0.05 ng/mL.

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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. 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. 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. IL-12 apparently shows species specificity with human IL-12 reportedly showing minimal activity in the murine system.

IL-12 is produced by macrophages and B lymphocytes and has been shown to have multiple effects on T cells and natural killer (NK) cells. These effects include inducing production of IFN-γ and TNF by resting and activated T and NK cells, synergizing with other IFN-γ inducers at both the transcriptional and post-transcriptional levels. This interaction induces IFN-γ gene expression, enhancing the cytotoxic activity of resting NK and T cells, inducing and synergizing with IL-2 in the generation of lymphokine-activated killer (LAK) cells, acting as a co-mitogen to stimulate proliferation of resting T cells, and inducing proliferation of activated T and NK cells. Current evidence indicates that IL-12, produced by macrophages in response to infectious agents, is a central mediator of the cell-mediated immune response by its actions on the development, proliferation, and activities of TH1 cells. In its role as the initiator of cell-mediated immunity, it has been suggested that IL-12 has therapeutic potential as a stimulator of cell-mediated immune responses to microbial pathogens, metastatic cancers, and viral infections such as AIDS.

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