

# Cytokines

## Human Recombinant IL-12



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Catalog # 78027.1  
78027

5 µg  
25 µg

## Product Description

Interleukin 12 (IL-12p70) is a heterodimeric cytokine composed of p35 and p40 subunits. IL-12 is produced by monocytes, macrophages, dendritic cells, neutrophils, and B cells in response to bacterial products and cytokines such as IFN-γ. The IL-12 receptor is expressed on T, NK and dendritic cells. Upon binding, IL-12 initiates signaling via the JAK/STAT signaling pathway and stimulates NK, B, and T cells to produce IFN-γ (Watford et al.). It also regulates cytokine synthesis, proliferation of T and NK cells, and stimulates differentiation of CD4+ and CD8+ T cells (Germann & Rüde). Mice that are deficient in IL-12 are susceptible to many intracellular pathogens and have impaired IFN-γ secretion, Th1 differentiation, and NK cytolytic activity; however, Th2 development and IL-4 production are enhanced (Watford et al.).

## Product Information

**Alternative Names:** CTL maturation factor, Cytotoxic lymphocyte maturation factor, IL-12p70, Interleukin-12, Natural killer cells stimulator factor, NKSF

**Accession Number:** p35 Subunit: P29459  
p40 Subunit: P29460

**Amino Acid Sequence:** p35 Subunit: RNLPVATPDP GMFPCLHHSQ NLLRAVSNML QKARQTLEFY PCTSEEDIDHE DITKDKTSTV  
EACLPLELTK NESCLNSRET SFITNGSCLA SRKTSFMMAL CLSSIIYEDLK MYQVEFKTMN AKLLMDPKRQ  
IFLDQNMLAV IDELMQALNF NSETVPQKSS LEEPDFYKTK IKLCILLHAF RIRAVTIDRV MSYLNAS

p40 Subunit: IWELKKDVYV VELDWPDPAD GEMVLTCDT PEEDGITWTL DQSSEVLGSG KTLTIQVKEF  
GDAGQYTCHK GGEVLSHSL LLHKKEDGIW STDILKDQKE PKNKTFRLCE AKNYSGRFTC WWLTTISTDL  
TFSVKSSRGS SDPQGVTCGA ATLSAERVGR DNKEYEYSVE CQEDSACPAA EESLPIEVMV DAVHKLKYEN  
YTSSFFIRDI IKPDPPKNLQ LKPLKNSRQV EVSWEYPDTW STPHSYFSLT FCVQVQGKSK REKKDRVFTD  
KTSATVICRK NASISVRAQD RYYSSSWSEW ASVPCS

**Predicted Molecular Mass:** p35 Subunit: 22.5 kDa; p40 Subunit: 34.7 kDa

**Species:** Human

**Cross Reactivity:** Mouse, Monkey

**Formulation:** Lyophilized after dialysis against phosphate-buffered saline.

**Source:** HEK 293

## Specifications

**Activity:** The specific activity is  $\geq 5 \times 10^5$  units/mg ( $EC_{50} \leq 2$  ng/mL) as determined by the induction of IFN-gamma from NK cells co-stimulated with IL-18.

**Purity:**  $\geq 95\%$

**Endotoxin Level:** Measured by kinetic limulus amoebocyte lysate (LAL) analysis and is  $\leq 0.2$  EU/µg protein.

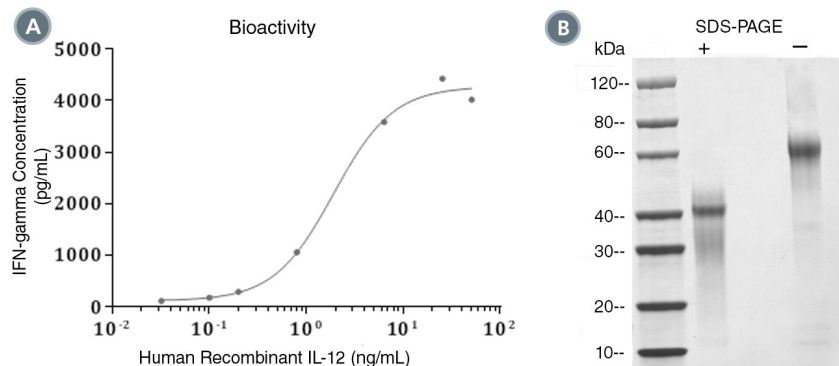
## Preparation and Storage

**Storage:** Store at -80°C.

**Stability:** Stable as supplied for 12 months from date of receipt.

**Reconstitution:** Centrifuge vial before opening. Resuspend the product in sterile water or phosphate-buffered saline to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 week or at -20°C to -80°C for up to 2 months. Avoid repeated freeze-thaw cycles.

## Data



(A) The biological activity of Human Recombinant IL-12 was tested by its ability to produce IFN-gamma in NK cells co-stimulated with IL-18. The EC50 is defined as the effective concentration of the growth factor at which IFN-gamma production is at 50% of maximum. The EC50 in the above example is less than 2 ng/mL.

(B) 2 µg of Human Recombinant IL-12 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IL-12 has a predicted molecular mass of 22.5 - 34.7 kDa.

## Related Products

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## References

- Germann T & Rüde E. (1995) Interleukin-12. *Int Arch Allergy Immunol* 108(2): 103–12.
- Watford WT et al. (2003) The biology of IL-12: coordinating innate and adaptive immune responses. *Cytokine Growth Factor Rev* 14(5): 361–68.

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