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Product Data Sheet

Recombinant Human IL-12 (p70) (carrier-free)

Catalog # / Size: 573002 / 10 µg
573004 / 25 µg
573006 / 100 µg
573008 / 500 µg

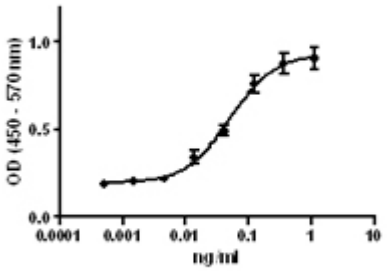
Source: Expressed in insect cells as secreted protein (p35: Accession# NM_000882, p40: Accession# NM_002187)

Molecular Mass: The hIL-12 consists of two subunits linked via a disulphide bond: P35 (Accession# NP_000873.2: Arg 57- Ser 253) and P40 (Accession# NP_002178.2: Ile 23-Ser 328). The total predicted molecular weight is 57 kDa. The non-reduced protein migrates at approximately 55 kDa and the DTT-reduced protein produces two bands migrating at approximately 26 kDa and 40 KDa by SDS-PAGE.

Purity: 95%, as determined by Coomassie stained SDS-PAGE.

Endotoxin Level: Less than 0.01ng per µg cytokine as determined by the LAL method.

Activity: ED50 =0.05-0.10 ng/ml, corresponding to a specific activity of 1.0 â€“ 2.0 x 10^7 units/mg, as determined by the production of IFNγ by activated human PBMC in response to IL-12.



IFNγ induced by human IL-12 in PBMC activated with PHA

Preparation: 10-100 µg sizes are bottled at 200 µg/mL. 500 µg and larger sizes are bottled at the concentration indicated on the vial.

Formulation: The protein was 0.22µm filtered in 10mM NaH2PO4, 150mM NaCl, pH 7.2

Storage: Unopened vial can be stored at -20°C for six months or at -70°C for one year. For maximum results, quick spin vial prior to opening. Stock solutions should be prepared at no less than 10µg/mL in buffer containing carrier protein such as 1% BSA or HSA or 10% FBS. Avoid repeated freeze/thaw cycles.

Applications:

Applications: Bioassay

Recommended Usage:

Description: IL12 (p70) is a disulfide-linked heterodimer composed of unrelated p40 (glycosylated) and p35 subunits. IL-12 acts as a growth factor for activated human T and NK cells, enhances the lytic activity of human NK cells, and stimulates the production of IFNg by resting human PBMC. IL-12R is formed by two chains, IL-12Rβ1 and IL-12Rβ2. IL-12Rβ1 is associated with the Janus kinase (Jak) Tyk2 and binds IL-12 p40; IL-12Rβ2 is associated with Jak2 and binds either the heterodimer or the p35 chain. Signaling through the IL-12 receptor complex induces phosphorylation, dimerization, and nuclear translocation of several signal transducers and activators of transcription (STAT) family members (STAT1, 3, 4, 5), but most of the biological responses to IL-12 have been attributed to STAT4. IL-12 has been shown to elicit anti-tumor activity in mice and humans. It is believed that the antitumor effects of IL-12 are mediated, at least in part, by indirect mechanisms. Induction of IFN-γ results in the upregulation of class I and class II MHC molecules, adhesion molecules (ICAM-1), nitric oxide production by antigen presenting cells (APC), and the production of additional cytokines, CXCL9 and 10, which in turn mediate angiostatic effects. Cytokine detection IL-12, IL-23 and IL-35 share common subunits, utilizing combinations of p40, p19 and p35 proteins. Caution must be used when selecting antibodies and assays when specific identification, measurement, as well as activation state discrimination, is required.

1. Active IL-12 consists of two subunits: p40 + p35.
2. p40 can also exist as a monomer (IL-12 p40) or a homodimer (IL-12 p80).
3. Besides contributing to IL-12, p40 is also found in IL-23, a heterodimer of p40 and p19.
4. Similarly, p35 not only contributes to IL-12, but is also found in the heterodimer IL-35 (p35 and EBI3).

Note that assays using antibodies specific for the p40 subunit will be unable to discriminate between the active IL-12, monomeric p40, dimeric p40, and IL-23; likewise, assays using p35 detection alone will pick up both IL-12 (heterodimer) and IL-35.

Antigen References:
1. Schoenhaut DS, *et al.* 1992. *J. Immunol.* 148:3433.
2. Manetti R, *et al.* 1994. *J. Exp. Med.* 179:1273.
3. Ireland D, *et al.* 2005. *Viral Immunol.* 18:397.
4. Moreno SE, *et al.* 2006. *J. Immunol.* 177:3218.
5. Lyakh L, *et al.* 2008. *Immunol. Rev.* 226:112.
6. Theiner G, *et al.* 2008. *Mol Immunol.* 45:244.

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7. Zhu S, *et al.* 2010. *J. Immunol.* 184:2348.

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