

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived	
	<div>Canine IL-12 p40 (Ile23 - Ser329) Accession # Q28268</div>	10-His tag
	<div>Canine IL-12 p35 (Arg26 - Ser222) (Asp63Glu, Tyr64Leu, Ile65Tyr, Pro66Ser) Accession # Q28267</div>	10-His tag
	N-terminus	C-terminus
N-terminal Sequence Analysis	Ile23 (p40 subunit) & Arg26 (p35 subunit)	
Structure / Form	Disulfide-linked heterodimer	
Predicted Molecular Mass	36.3 kDa (p40), 23.6 kDa (p35)	

SPECIFICATIONS

SDS-PAGE	42 kDa and 28 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using PHA-stimulated human T lymphoblasts. Symons, J.A. <i>et al.</i> (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. <i>et al.</i> (eds): IRL Press. 272. The ED ₅₀ for this effect is typically 0.4-2 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 10 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
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. <ul style="list-style-type: none"> 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.

BACKGROUND

Interleukin 12 (IL-12) is the founding member of the IL-12 family of heterodimeric cytokines, which have important immunological functions. IL-12 is composed of two disulfide-linked subunits of 35 kDa and 40 kDa, respectively. The 35 kDa subunit (p35) is an α-helical protein homologous to IL-6 and G-CSF. The 40 kDa subunit (p40) contains one fibronectin type III and one Ig C2-like domain, and has a high degree of structural homology to type I cytokine receptors. Whereas p35 subunit is unique to IL-12, the p40 subunit is also utilized in IL-23. Mature canine p35 is a 197 amino acids (aa) protein that is secreted as a heterodimer linked to p40. It contains two potential N-linked glycosylation sites and shares 91%, 86%, 85%, 56%, and 55% aa sequence identity with feline, human, porcine, rat and mouse p35, respectively. Mature p40 contains 307 aa and can exist in multiple forms, including monomer, homodimer, heterodimer linked to p19 (forming IL-23), and heterodimer linked to p35 (forming IL-12). It is upregulated by substances such as LPS and CpG that activate antigen-presenting cells. Mature canine p40 shows 94%, 85%, 84%, 65%, and 65% aa sequence identity to feline, human, porcine, rat and mouse p40, respectively. Cells known to produce IL-12 include macrophages, dendritic cells, monocytes, Langerhans cells, neutrophils, and keratinocytes. The activities of IL-12 are mediated by the receptor complex composed of two type I transmembrane proteins: a 100 kDa ligand-binding subunit (IL-12 Rβ1) and a 130 kDa signal transducing subunit (IL-12 Rβ2). IL-12 facilitates hematopoietic stem cell proliferation, induces NK cell proliferation, promotes IgG production (in mice), and potentiates the expansion and late activation of Th1 CD4+ T cells (1 - 5).

References:

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- Park, A.Y. and P. Scott (2001) Scand. J. Immunol. **53**:529.
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- Brombacher, F. *et al.* (2003) Trends Immunol. **24**:207.
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