

DESCRIPTION

Source	<i>Spodoptera frugiperda</i> , Sf 21 (baculovirus)-derived	
	Feline IL-12 p40 (Ile23 - Ser329) (Glu167Gly) Accession # O02744	10-His tag
	Feline IL-12 p35 (Arg26 - Ser222) (Ala221Ser) Accession # O02743	10-His tag
	N-terminus	C-terminus
N-terminal Sequence Analysis	Arg26 (p35) & Ile23 (p40)	
Structure / Form	Disulfide-linked heterodimer	
Predicted Molecular Mass	23.7 kDa (p35), 36.2 kDa (p40)	

SPECIFICATIONS

SDS-PAGE	31-33 kDa and 41-45 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using PHA-stimulated human T lymphoblasts. The ED ₅₀ for this effect is typically 1-5 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 100 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 a 75 kDa heterodimeric glycoprotein that is composed of the disulfide-linked 35 kDa (p35) and 40 kDa (p40) subunits. Whereas p35 is an α -helical protein related to IL-6, the p40 subunit belongs to the type I cytokine receptor family. The feline IL-12 p35 gene encodes a 222 amino acids (aa) precursor protein with a 25 aa signal peptide. Mature feline p35 contains four potential N-linked glycosylation sites and one intrachain disulfide bond. p35 is synthesized constitutively but can be upregulated by the class II MHC-TCR interaction. p35 is never secreted unbound to p40. Mature feline p35 shows 91%, 88%, 86%, 57%, 56% and 75% aa identity with canine, human, porcine, rat, mouse and guinea pig p35, respectively. The feline p40 gene encodes a secreted 329 aa precursor protein with a 22 aa signal peptide. Mature feline p40 contains one fibronectin type III and one Ig C2-like domain. It is known to exist as a monomer, a homodimer, and as heterodimers linked either to p35 to form IL-12, or to p19 to create IL-23. p40 synthesis is upregulated by many different inflammatory signals including LPS and CpG. Mature feline p40 shows 94%, 85%, 85%, 67%, 67% and 76% aa identity to canine, human, porcine, rat, mouse and guinea pig p40, respectively. Cells known to produce IL-12 include macrophages, dendritic cells, monocytes, Langerhans cells, neutrophils, and keratinocytes. The signaling receptor for IL-12 is composed of two type I transmembrane glycoproteins belonging to the type I cytokine receptor superfamily. IL-12 receptor β 1 (IL-12 R β 1) is 100 kDa protein that serves as the principal binding site for the p40 subunit. IL-12 receptor β 2 (IL-12 R β 2) is 130 kDa protein that interacts primarily with p35 and functions as the signal transducing component. 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:

1. Schijns, V.E. *et al.* (1997) Immunogenetics **45**:462.
2. Park, A.Y. and P. Scott (2001) Scand. J. Immunol. **53**:529.
3. Trinchieri, G. *et al.* (2003) Immunity **19**:641.
4. Brombacher, F. *et al.* (2003) Trends Immunol. **24**:207.
5. Lankford, C.S. and D.M. Frucht (2003) J. Leukoc. Biol. **73**:49.