

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived		
	Human IL-27 EBI-3 (Arg21-Lys229) Accession # Q14213.2	GSGSSRGGSGSGGGGSKL	Human IL-27 p28 (Phe29-Pro243) Accession # AAM34498
	N-terminus		C-terminus

N-terminal Sequence Arg21

Analysis

Predicted Molecular Mass 50 kDa

SPECIFICATIONS

SDS-PAGE	60 kDa, reducing conditions
Activity	Measured in an anti-viral assay using HepG2 human hepatocellular carcinoma cells infected with encephalomyocarditis (EMC) virus. Bender H. <i>et al.</i> (2009) <i>Hepatology</i> 50 :585. The ED ₅₀ for this effect is 1-8 ng/mL.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in HEPES, NaCl, EDTA and CHAPS 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

IL-27 is a heterodimeric group 2 receptor ligand molecule that belongs to the IL-6/IL-12 family of long type I cytokines (1). It is composed of EBI3 (EBV-induced gene 3), a 34 kDa glycoprotein that is related to the p40 subunit of IL-12 and IL-23, and p28, the 28 kDa glycoprotein that is related to the p35 chain of IL-12 (2-4). The human EBI3 gene encodes a 229 amino acid (aa) precursor that contains a 20 aa signal peptide and 209 aa mature protein (5). The mature region contains two potential N-linked glycosylation sites, two fibronectin type III domains, and two pairs of conserved cysteine residues with a WSXWS-like motif that places the molecule in the hematopoietin receptor family (5). Although p40, the EBI3 counterpart in IL-12, is known to form homodimers, there is no evidence to date that EBI3 also homodimerizes. Human EBI3 is 61% aa identical to mouse EBI3. The human p28 gene encodes a 243 aa precursor that contains a 28 aa signal sequence and 215 aa mature region (6). The mature region is characterized by the presence of four α-helices, placing it in the IL-6 family of helical cytokines. Human p28 is 74% aa identical to mouse p28. IL-27 is expressed by monocytes, endothelial cells and dendritic cells (7). IL-27 binds to and signals through a heterodimeric receptor complex composed of WSX-1 (TCCR) and gp130. Evidence suggests IL-27 interacts only with WSX-1 (6, 8, 9). IL-27 has both anti- and proinflammatory properties. As an anti-inflammatory, IL-27 seems to induce a general negative feedback program that limits T and NK-T cell activity (3, 7). At the onset of infection, IL-27 induces an IL-12 receptor on naïve CD4⁺ T cells, making them susceptible to subsequent IL-12 activity (and possible Th1 development) (10).

References:

1. Boulay, J-L. *et al.* (2003) *Immunity* **19**:159.
2. Trinchieri, G. *et al.* (2003) *Immunity* **19**:641.
3. Murakami, M. *et al.* (2004) *Growth Factors* **22**:75.
4. Cordoba-Rodriguez, R. and D.M. Frucht (2003) *Exp. Opin. Biol. Ther.* **3**:715.
5. Devergne, O. *et al.* (1996) *J. Virology* **70**:1143.
6. Pflanz, S. *et al.* (2002) *Immunity* **16**:779.
7. Villarino, A.V. *et al.* (2004) *J. Immunol.* **173**:715.
8. Pflanz, S. *et al.* (2004) *J Immunol* **172**:2225.
9. Scheller, J. *et al.* (2005) *Biochem. Biophys. Res. Commun.* **326**:724.
10. Holscher, C. (2004) *Med. Microbiol. Immunol. (Berl)*.**193**:1.