

**DESCRIPTION**

<b>Source</b>	Human embryonic kidney cell, HEK293-derived human IL-27 protein	
	Human IL-27 EBI3 (Arg21-Lys229) Accession # Q14213.2	
	Human IL-27 p28 (Phe29-Pro243) Accession # Q8NEV9.2	
	N-terminus	C-terminus
<b>N-terminal Sequence Analysis</b>	Arg21 (EBI3) & Phe29 (p28)	
<b>Structure / Form</b>	Non-covalent heterodimer	
<b>Predicted Molecular Mass</b>	23 kDa (EBI3) & 25 kDa (p28)	

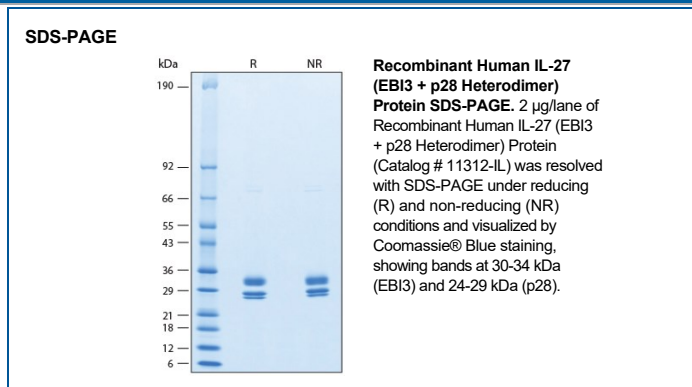
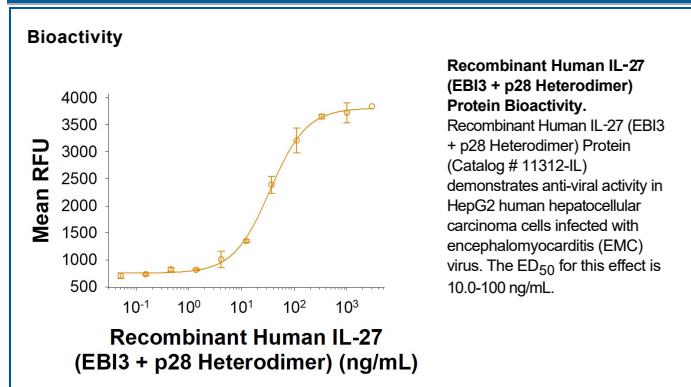
**SPECIFICATIONS**

<b>SDS-PAGE</b>	30-34 kDa (EBI3) & 24-29 kDa (p28), under reducing conditions.
<b>Activity</b>	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> <b>50</b> :585. The ED <sub>50</sub> for this effect is 10.0-100 ng/mL.
<b>Endotoxin Level</b>	<0.10 EU per 1 µg of the protein by the LAL method.
<b>Purity</b>	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
<b>Formulation</b>	Supplied as a 0.2 µm filtered solution in MOPS and NaCl with Trehalose. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Shipping</b>	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> <li>• 6 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after opening.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after opening.</li> </ul>

**DATA**



## 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  $\alpha$ -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<sup>+</sup> 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.