

**DESCRIPTION**

<b>Source</b>	<i>E. coli</i> -derived rat IL-1 beta/IL-1F2 protein Val117-Ser268, with an N-terminal Met Accession # Q63264
<b>N-terminal Sequence Analysis</b>	Met
<b>Predicted Molecular Mass</b>	17 kDa

**SPECIFICATIONS**

<b>Activity</b>	Measured in a cell proliferation assay using D10.G4.1 mouse helper T cells. 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 <sub>50</sub> for this effect is 0.300-1.50 ng/mL.
<b>Endotoxin Level</b>	<0.01 EU per 1 $\mu$ g of the protein by the LAL method.
<b>Purity</b>	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution in MES, NaCl, EDTA, DTT and PEG 8000. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 100 $\mu$ g/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**DATA**

<p><b>Bioactivity</b></p> <p><b>Recombinant Rat IL-1 beta/IL-1F2 Protein Bioactivity</b> Recombinant Rat IL-1<math>\beta</math>/IL-1F2 (Catalog # 501-RL/CF) stimulates cell proliferation of the D10.G4.1 mouse helper T cell line. The ED<sub>50</sub> for this effect is 0.300-1.50 ng/mL.</p>	<p><b>SDS-PAGE</b></p> <p><b>Recombinant Rat IL-1 beta/IL-1F2 Protein SDS-PAGE 1</b> <math>\mu</math>g/lane of Recombinant Rat IL-1<math>\beta</math>/IL-1F2 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 18 kDa.</p>
---	---

**BACKGROUND**

IL-1 is a name that designates two pleiotropic cytokines, IL-1 $\alpha$  (IL-1F1) and IL-1 $\beta$  (IL-1F2), which are the products of distinct genes. IL-1 $\alpha$  and IL-1 $\beta$  are structurally related polypeptides that share approximately 26% amino acid (aa) identity in rat. Both proteins are produced by a wide variety of cells in response to inflammatory agents, infections, or microbial endotoxins. While IL-1 $\alpha$  and IL-1 $\beta$  are regulated independently, they bind to the same receptor and exert identical biological effects. IL-1 RI binds directly to IL-1 $\alpha$  or IL-1 $\beta$  and then associates with IL-1 R accessory protein (IL-1 R3/IL-1 R AcP) to form a high-affinity receptor complex that is competent for signal transduction. IL-1 RII has high affinity for IL-1 $\beta$  but functions as a decoy receptor and negative regulator of IL-1 $\beta$  activity. IL-1ra functions as a competitive antagonist by preventing IL-1 $\alpha$  and IL-1 $\beta$  from interacting with IL-1 RI (1 - 4). The rat IL-1 $\beta$  cDNA encodes a 268 aa precursor. A 116 aa propeptide is cleaved intracellularly by the cysteine protease IL-1 $\beta$ -converting enzyme (Caspase-1/ICE) to generate the active cytokine (5, 6). The 17 kDa mature rat IL-1 $\beta$  shares 90% aa sequence identity with cotton rat and mouse and 65% - 77% with canine, equine, feline, human, porcine, and rhesus IL-1 $\beta$ .

**References:**

1. Allan, S.M. *et al.*, (2005) Nat. Rev. Immunol. **5**:629.
2. Boraschi, D. and A. Tagliabue (2006) Vitam. Horm. **74**:229.
3. Kornman, K.S., (2006) Am. J. Clin. Nutr. **83**:475S.
4. Isoda, K. and F. Ohsuzu (2006) J. Atheroscler. Thromb. **13**:21.
5. Accession # M98820.
6. Martinon, F. and J. Tschopp (2007) Cell Death Differ. **14**:10.