



# ***Recombinant Mouse IL-1 $\beta$ /IL-1F2***

Catalogue Number: REC205

## **Specifications and Use**

### **Source**

- A DNA sequence encoding mature mouse IL-1 $\beta$  (Val118 – Ser269; Accession NP\_032387) was expressed in *E.coli*.

### **Molecular Mass**

- 17 kDa, reducing condition

### **Purity**

- 90%, as determined by SDS-PAGE and visualized by silver stain.

### **Endotoxin Level**

- < 1.0 EU per 1  $\mu$ g of the protein as determined by LAL method.

### **Activity**

- Measured in a cell proliferation assay using D10.G4.1 mouse helper T cells. Symons, J.A. *et al.* (1987) in *Lymphokines and Interferons, a Practical Approach*. Clemens, M.J. *et al.* (eds): IRL Press. 272.
- The ED<sub>50</sub> for this effect is typically < 10 pg/mL.

### **Formulation**

- Supplied as lyophilized powder.
- Reconstitute in PBS
- Centrifuge the vial before opening to prevent loss of the powder.

### **Storage**

- Samples are stable up to 1 year from date of receipt at -20°C.
- Upon thawing, this protein can be stored under sterile conditions at 2-8°C for two weeks or at -70°C in a manual defrost freezer for three months without detectable loss of activity.
- Avoid repeated freeze-thaw cycles. Samples are recommended to be aliquot in small volumes and frozen for multiple uses.

## **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 21% amino acid (aa) identity in mouse. 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-1RI binds directly to IL-1 $\alpha$  or IL-1 $\beta$  and then associates with IL-1R accessory protein (IL-1R3/IL-1R AcP) to form a high affinity receptor complex that is competent for signal transduction. IL-1RII 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-1RI (1-4). The mouse IL-1 $\beta$  cDNA encodes a 269 aa precursor. A 117 aa propeptide is cleaved intracellularly by the cysteine protease IL-1 $\beta$  converting enzyme (Caspase1/ICE) to generate the active cytokine (5-7). The 17 kDa mature mouse IL-1 $\beta$  shares 90% aa sequence identity with rat and 65% - 78% with canine, cotton rat, equine, feline, human, and porcine IL-1 $\beta$ .

## **References**

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4. Isoda, K. and F. Ohsuzu (2006) *J. Atheroscler. Thromb.* **13**:21.
5. March, C.J. *et al.* (1985) *Nature* **315**:641.
6. Auron, P.E. *et al.* (1984) *Proc. Natl. Acad. Sci.* **81**:7907.
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