

## Recombinant Mouse IL-1 $\beta$ (carrier-free)

**Catalog # / Size:** 575102 / 10  $\mu$ g  
575104 / 25  $\mu$ g  
575106 / 100  $\mu$ g  
575108 / 500  $\mu$ g

**Source:** Mouse IL-1 $\beta$ , amino acids Val118-Ser269 (Accession # NM\_008361) was expressed in *E. coli*.

**Molecular Mass:** The 152 amino acid recombinant protein has a predicted molecular mass of 17,394 Da. The DTT-reduced and the non-reduced protein migrate at approximately 19kDa by SDS-PAGE. The N-terminal amino acid is Valine.

**Purity:** Purity is >98%, as determined by Coomassie stained SDS-PAGE.

**Endotoxin Level:** Endotoxin level is <0.1 EU/ $\mu$ g (<0.01ng/ $\mu$ g) protein as determined by the LAL method.

**Activity:** ED50 =0.001 -0.005 ng/ml, corresponding to a specific activity of 1- 0.2 x 10<sup>9</sup> units/mg, as determined by the dose dependent stimulation of D10S cells proliferation

**Preparation:** 10-100 $\mu$ g sizes are bottled at 200 $\mu$ g/mL. 500 $\mu$ g sizes and larger are bottled at the concentration indicated on the vial.

**Formulation:** 0.22  $\mu$ m filtered protein solution is in 10mM NaH<sub>2</sub>PO<sub>4</sub>, 150mM NaCl, pH 7.2.

**Storage:** Unopened vial can be stored at 4°C for three months, at -20°C for six months, or at -70°C for one year. For maximum results, quick spin vial prior to opening. Stock solutions should be prepared at no less than 10 $\mu$ g/mL in buffer containing carrier protein such as 1% BSA or HSA or 10% FBS. For long term storage, aliquot into polypropylene vials and store in a manual defrost freezer. **Avoid repeated freeze/thaw cycles.**

## Applications:

**Applications:** Bioassay

**Recommended Usage:** Use when high specific biological activity is required.

**Application Notes:** This IL-1 $\beta$  protein is biologically active, and can be used for in vitro assays

**Application References:** 1. O'Sullivan BJ, *et al.* 2006. *J. Immunol.* 176:7278. PubMed

**Description:** Interleukin-1 is a key mediator of inflammation, with pleiotropic effects on several cells and signaling pathways. The activity defined as IL-1 reflects the function of 2 molecules, IL-1 $\alpha$  and IL-1 $\beta$ . IL1A encodes IL-1 $\alpha$ , which is cell-bound, and IL1B encodes IL-1 $\beta$ , a secreted cytokine (1). IL-1 $\alpha$  and IL-1 $\beta$  are synthesized as 31-kD precursors and are processed by proteases to their mature 17-kD forms. IL-1 $\beta$ -converting enzyme cleaves the inactive IL-1 $\beta$  Precursor and ProIL-1 $\alpha$  is processed by calpain (4). IL-1 $\beta$  is a tumor-promoting cytokine, and it enhances tumor metastasis and angiogenesis. IL-1 $\beta$  is able to facilitate tumor progression in murine models of lung cancer. Upregulation of metastasis and tumor angiogenesis by IL-1 $\beta$  has been associated with increased activity of matrix metalloproteinases and expression of the pro-angiogenic molecule hepatocyte growth factor (5).

**Antigen References:** 1. Johnsen AK, *et al.* *Arthritis Rheum* 58:1947-1957 2008.  
2. Brinster C and Shevach EM *J. Leukoc. Biol.* 84:480-487 2008.  
3. O'Sullivan BJ, *et al.* *J. Immunol.* 176:7278-7287 2006.  
4. Nazarenko I, *et al.* *Neoplasia* 10:549-562 2008.  
5. Boost KA, *et al.* *BMC Cancer* 8:265 2008.



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