

# Interleukin-1 Alpha

## Mouse, Recombinant (rmIL-1 $\alpha$ )

Expressed in *E. coli*

Cat. No. CRP0831

Lot. No. (See product label)

### PRODUCT INFORMATION

**Description:** IL-1 $\alpha$  is distinct from the other agonist member of the IL-1 family, IL-1 $\beta$ . Although IL-1 $\alpha$  triggers the same IL-1 receptor and although many of the biological effects of IL-1 $\alpha$  are similar to those of IL-1 $\beta$ , in humans IL-1 $\alpha$  is predominantly an intracellular molecule. In fact, there is evidence that IL-1 $\alpha$  has both intracellular functions as a precursor molecule due to a nuclear localization sequence. IL-1 $\alpha$  as an unprocessed precursor is biologically as active as the processed form. IL-1 $\alpha$  is also found constitutively in epithelial cells, whereas constitutive expression of IL-1 $\beta$  is rare. In many ways, IL-1 $\alpha$  appears to be closer to the fibroblast growth factor family than the secreted IL-1 $\beta$  form. Therapeutic strategies for blocking IL-1 $\beta$  predominate over those for blocking IL-1 $\alpha$ . Many humans have circulating neutralizing antibodies to IL-1 $\alpha$  but not IL-1 $\beta$ .

**Amino-Acid Sequence:** 156aa (The sequence of the first five N-terminal amino acids was determined and was found to be Ser-Ala-Pro-Tyr-Thr.), non-glycosylated.

**M. W. :** 18,000 Da

**Recombinant:** Expressed in *E. coli*

**Purity:** >98% as determined by RP-HPLC, FPLC and SDS-PAGE .

**Formulation:** Mouse IL-1 $\alpha$  was lyophilized after extensive dialysis against PBS.

**Specific Activity:** The ED50 as determined by the dose-dependant stimulation of mouse D10S cells was found to be less than 0.01 ng/ml, corresponding to a Specific Activity of  $1.0 \times 10^8$  IU/mg.

**Endotoxin:** Less than 0.1ng/ $\mu$ g (1 IEU/ $\mu$ g) of IL-1 $\alpha$ .

**Reconstitution:** It is recommended to reconstitute the lyophilized rmIL-1 $\alpha$  in sterile 18M $\Omega$ -cm H<sub>2</sub>O not less than 100 $\mu$ g/ml, which can then be further diluted to other aqueous solutions.

**Storage:** Lyophilized rmIL-1 $\alpha$  although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution rmIL-1 $\alpha$  should be stored at 4°C between 2-7 days and for future use below -18°C. For long-term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Aliquot to avoid repeated freeze-thaw cycles.



Crystal structure of IL-1a ([PDB 2ILA](#)).

### GENE INFORMATION

**Gene Name:** [IL1A](#)

**Gene Alias:** RP23-160G19.8, IL-1a

**Gene Type:** protein coding

**mRNA Refseq:** [NM\\_010554.4](#)

**Protein Refseq:** [NP\\_034684.2](#)

**MIM:** [147760](#)

**GeneID:** [16175](#)

**Chromosome Location:** 2 73.0 cM

**Pathway:** Apoptosis; Cytokine-cytokine receptor interaction; Hematopoietic cell lineage; MAPK signaling pathway; Type I diabetes mellitus

**Function:** cytokine activity; growth factor activity; interleukin-1 receptor binding

### REFERENCES

1. Huising MO, Stet RJ, et al. The molecular evolution of the interleukin-1 family of cytokines; IL-18 in teleost fish. *Dev. Comp. Immunol.* 2004; 28 (5): 395–413
2. Sims JE, Nicklin MJ, et al. A new nomenclature for IL-1-family genes. *Trends Immunol.* 2001; 22 (10): 536–537
3. Dunn E, Sims JE, et al. Annotating genes with potential roles in the immune system: six new members of the IL-1 family. *Trends Immunol.* 2001; 22 (10): 533–536

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21 Brookhaven BLVD · Port Jefferson Station, NY 11776, USA  
Technical Support: T: 631-871-5806 · F: 631-614-7828  
E-mail: [info@creative-biolabs.com](mailto:info@creative-biolabs.com)  
[www.creative-biolabs.com](http://www.creative-biolabs.com)