

IL-1 beta Protein, Rat

Cat. No.:	HY-P7097
Synonyms:	rRtIL-1 β ; Catabolin; IL1F2; IL-1 beta; IL1B
Species:	Rat
Source:	E. coli
Accession:	Q63264 (V117-S268)
Gene ID:	24494
Molecular Weight:	Approximately 18 kDa

PROPERTIES

AA Sequence	<p>V P I R Q L H C R L R D E Q Q K C L V L S D P C E L K A L H L N G Q N I S Q Q V</p> <p>V F S M S F V Q G E T S N D K I P V A L G L K G L N L Y L S C V M K D G T P T L</p> <p>Q L E S V D P K Q Y P K K K M E K R F V F N K I E V K T K V E F E S A Q F P N W</p> <p>Y I S T S Q A E H R P V F L G N S N G R D I V D F T M E P V S S</p>
Biological Activity	<p>1. The ED₅₀ is <10 pg/mL as measured by mouse D10S cells, corresponding to a specific activity of >1.0 × 10⁸ units/mg.</p> <p>2. Measured in a cell proliferation assay using CTLL-2 mouse T lymphocyte. The ED₅₀ for this effect is 7.721 ng/mL, corresponding to a specific activity is 1.30 × 10⁵ U/mg.</p> <p>3. Measured by its ability to induce Interferon gamma secretion by human natural killer lymphoma NK-92 cells. The ED₅₀ for this effect is 0.1959 μg/mL.</p>
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.22 μ m filtered solution of PBS, pH 7.4 or PBS, pH 7.4, 8% trehalose.
Endotoxin Level	<0.2 EU/ μ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in PBS, pH 7.4. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	Interleukin-1 β (IL-1 β) is one of the pro-inflammatory cytokines and is produced and secreted by a variety of cell types although the vast majority of studies have focussed on its production within cells of the innate immune system, such as
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monocytes and macrophages^{[1][2]}.

IL-1 β is produced as inactive pro-IL-1 β (encoded by pro-IL-1b) in response to inflammatory stimuli, including both microbial products and endogenous danger-associated molecules. IL-1 β gene expression and synthesis of pro-IL-1 β occurs after activation of pattern recognition receptors (PRRs). Inflammatory stimuli also drive activation of cytosolic CARD and PYHIN domain-containing PRRs that recruit ASC and caspase-1 (Casp-1) to assemble into the multiprotein complex inflammasome. Pro-Casp-1 (encoded by pro-Casp-1), activated by the inflammasome, cleaves pro-IL-1 β into the bioactive IL-1 β . IL-1 β acts in an autocrine/paracrine manner via the type I IL-1 receptor (IL-1R1)^{[1][2][3]}.

IL-1 β could regulate the inflammatory response, and is involved in a variety of cellular activities, including cell proliferation, differentiation, and apoptosis. IL-1 β also plays a significant regulator of reproduction in females^{[1][2][3]}.

REFERENCES

[1]. Jan Petrasek, et al. IL-1 receptor antagonist ameliorates inflammasome-dependent alcoholic steatohepatitis in mice. *J Clin Invest*. 2012 Oct;122(10):3476-89.

[2]. Karina Zitta, et al. Interleukin-1beta regulates cell proliferation and activity of extracellular matrix remodelling enzymes in cultured primary pig heart cells. *Biochem Biophys Res Commun*. 2010 Sep 3;399(4):542-7.

[3]. Kenichi Shimada, et al. Caspase-1 dependent IL-1 β secretion is critical for host defense in a mouse model of *Chlamydia pneumoniae* lung infection. *PLoS One*. 2011;6(6):e21477.

Caution: Product has not been fully validated for medical applications. For research use only.

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