Animal-Free IL-1 alpha Protein, Mouse (His)

Cat. No.:	HY-P700186AF
Synonyms:	Hematopoietin-1; Lymphocyte-Activating Factor (LAF); Endogenous Pyrogen (EP); Leukocyte
Species:	Mouse
Source:	E. coli
Accession:	P01582 (S115-S270)
Gene ID:	16175
Molecular Weight:	Approximately 18.93 kDa

PROPERTIES

AA Sequence	M S A P Y T Y Q S D L R Y K L M K L V R Q K F V M N D S L N Q T I Y Q D V D K H Y L S T T W L N D L Q Q E V K F D M Y A Y S S G G D D S K Y P V T L K I S D S Q L F V S A Q G E D Q P V L L K E L P E T P K L I T G S E T D L I F F W K S I N S K N Y F T S A A Y P E L F I A T K E Q S R V H L A R G L P S M T D F Q I S
Biological Activity	Measure by its ability to induce D10.G4.1 cells proliferation. The ED_{50} for this effect is <5 pg/mL. The specific activity of recombinant mouse IL-1 alpha is > 2 x 10^8 IU/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 7.4.
Endotoxin Level	<0.1 EU per 1 μg of the protein by the LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
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	The cytokine interleukin-1 alpha (IL-1 alpha), present constitutively intracellularly in almost all quiescent non-hematopoietic cells, serves a crucial role in inflammation and acts as a bridge between the innate and adaptive immune systems. Upon binding to its receptor IL1R1, in conjunction with its accessory protein IL1RAP, it forms the high-affinity interleukin-1 receptor complex. Subsequent signaling events involve the recruitment of adapter molecules such as MYD88, IRAK1, or IRAK4, leading to the activation of NF-kappa-B and the three MAPK pathways—p38, p42/p44, and JNK pathways. Intracellularly, IL-1 alpha functions as an alarmin, and upon cell death, it is released into the extracellular space following

cell membrane disruption, inducing inflammation and signaling host response to injury or damage. Beyond its role as a danger signal released during cell necrosis, IL-1 alpha also directly senses DNA damage, serving as a signal for genotoxic stress without compromising cell integrity. Additionally, IL-1 alpha interacts with various proteins, including TMED10, facilitating translocation from the cytoplasm into the endoplasmic reticulum-Golgi intermediate compartment (ERGIC) and subsequent secretion. Its interaction with IL1R1 and S100A13 further contributes to its intricate regulatory mechanisms, with the latter being a crucial step in the export of IL-1 alpha, involving direct translocation of the complex across the plasma membrane.

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

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