abcam

Product datasheet

Recombinant mouse IL-1 beta protein (Active) ab259421

5 Images

Description

Product name	Recombinant mouse IL-1 beta protein (Active)
Biological activity	Fully biologically active compared to a standard. ED_{50} is ≤ 0.5294 ng /ml , corresponding to a specific activity of 1.89 x 10^6 units/mg.
Purity	>= 95 % SDS-PAGE. Purity by HPLC >=95%.
Endotoxin level	<=0.005 Eu/µg
Expression system	HEK 293 cells
Accession	P10749
Protein length	Full length protein
Animal free	Yes
Carrier free	Yes
Nature	Recombinant
Species	Mouse
Sequence	VPIRQLHYRL RDEQQKSLVL SDPYELKALH LNGQNINQQV IFSMSFVQGE PSNDKIPVAL GLKGKNLYLS CVMKDGTPTL QLESVDPKQY PKKKMEKRFV FNKIEVKSKV EFESAEFPNW YISTSQAEHK PVFLGNNSGQ DIIDFTMESV SS
Predicted molecular weight	17 kDa
Molecular weight information	M+0.61 Da (calc MW 17451.39 Da)
Amino acids	118 to 269
Additional sequence information	N-Terminal Glycine. Full-length mature chain lacking the propeptide.

Specifications

Our **Abpromise guarantee** covers the use of **ab259421** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	Cell Culture
	Functional Studies

	SDS-PAGE
	Mass Spectrometry
	HPLC
	Sandwich ELISA
Form	Lyophilized
Additional notes	This protein is filter sterilised prior to aliquoting and lyophilisation. All aliquoting and lyophilisation steps are performed in a sterile environment

Preparation and Storage

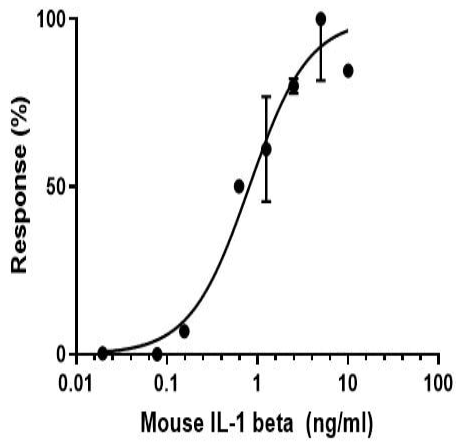
Stability and Storage	Shipped at Room Temperature. Store at Room Temperature.
	pH: 6.00 Constituents: 0.727% Dibasic monohydrogen potassium phosphate, 0.248% Monobasic dihydrogen potassium phosphate, 10.26% Trehalose
	Buffer lyophilised from
	This product is an active protein and may elicit a biological response in vivo, handle with caution.
Reconstitution	Reconstitute in PBS, aliquot and store at -80 C for 12 months or +4 C for 1 week. Avoid repeated freeze thaw. Lyophilized contents may appear as either a translucent film or a white powder. This variance does not affect the quality of the product.

General Info

Function	Potent proinflammatory cytokine. Initially discovered as the major endogenous pyrogen, induces prostaglandin synthesis, neutrophil influx and activation, T-cell activation and cytokine production, B-cell activation and antibody production, and fibroblast proliferation and collagen production. Promotes Th17 differentiation of T-cells.
Tissue specificity	Expressed in activated monocytes/macrophages (at protein level).
Sequence similarities	Belongs to the IL-1 family.
Post-translational modifications	Activation of the IL1B precursor involves a CASP1-catalyzed proteolytic cleavage. Processing and secretion are temporarily associated.
Cellular localization	Cytoplasm, cytosol. Lysosome. Secreted, exosome. Cytoplasmic vesicle, autophagosome. Secreted. The precursor is cytosolic. In response to inflammasome-activating signals, such as ATP for NLRP3 inflammasome or bacterial flagellin for NLRC4 inflammasome, cleaved and secreted. IL1B lacks any known signal sequence and the pathway(s) of its secretion is(are) not yet fully understood (PubMed:24201029). On the basis of experimental results, several unconventional secretion mechanisms have been proposed. 1. Secretion via secretory lysosomes: a fraction of CASP1 and IL1B precursor may be incorporated, by a yet undefined mechanism, into secretory lysosomes that undergo Ca(2+)-dependent exocytosis with release of mature IL1B (PubMed:15192144). 2. Secretory autophagy: IL1B-containing autophagosomes may fuse with endosomes or multivesicular bodies (MVBs) and then merge with the plasma membrane releasing soluble IL1B or IL1B-containing exosomes (PubMed:24201029). However, autophagy impacts IL1B production at several levels and its role in secretion is still controversial. 3. Secretion via exosomes: ATP-activation of P2RX7 leads to the formation of MVBs containing exosomes with entrapped IL1B, CASP1 and other inflammasome components. These MVBs

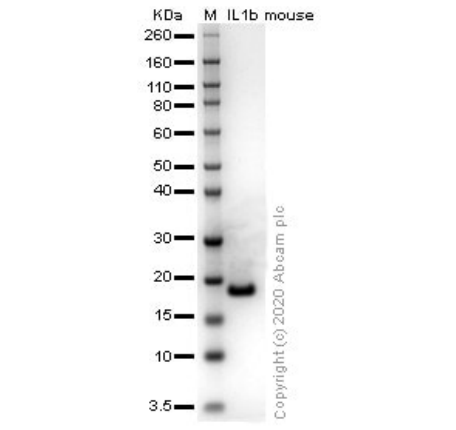
undergo exocytosis with the release of exosomes. The release of soluble IL1B occurs after the lysis of exosome membranes (By similarity). 4. Secretion by microvesicle shedding: activation of the ATP receptor P2RX7 may induce an immediate shedding of membrane-derived microvesicles containing IL1B and possibly inflammasome components. The cytokine is then released in the extracellular compartment after microvesicle lysis (PubMed:11728343). 5. Release by translocation through permeabilized plasma membrane. This may occur in cells undergoing pyroptosis due to sustained activation of the inflammasome (By similarity). These mechanisms may not be not mutually exclusive.

Images



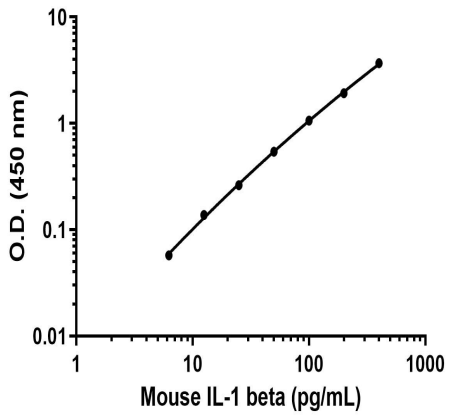
Functional Studies - Recombinant mouse IL-1 beta protein (Active) (ab259421)

Fully biologically active compared to a standard. Determined by dose-dependant stimulation of human TF-1 cells. ED_{50} is ≤ 0.5294 ng /ml, corresponding to a specific activity of 1.89 x 10^6 units/mg.



SDS-PAGE - Recombinant mouse IL-1 beta protein (Active) (ab259421)

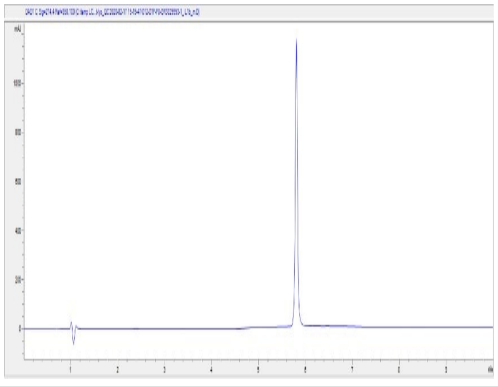
SDS-PAGE analysis of ab259421.



Sandwich ELISA - Recombinant mouse IL-1 beta protein (Active) (ab259421)

Sandwich ELISA - Recombinant mouse IL-1 beta protein standard curve

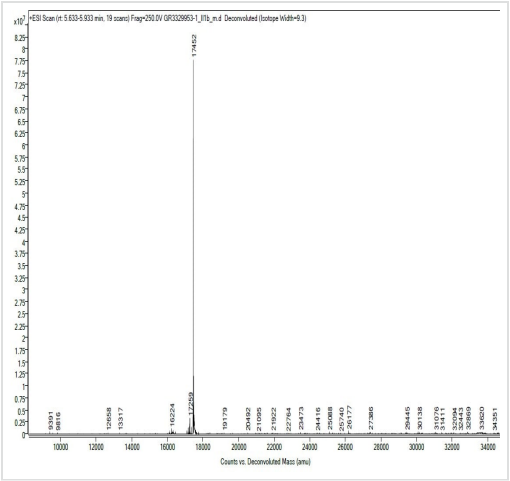
Background subtracted standard curve using Mouse IL-1beta Antibody Pair - BSA and Azide free (**ab241673**) and Recombinant mouse IL-1 beta protein (Active) (ab259421) in sandwich ELISA. The ELISA was performed using the components of the corresponding SimpleStep® kit, which uses the same antibody pair with a different formulation and format.



HPLC - Recombinant mouse IL-1 beta protein (Active) (ab259421)

Purity 100%

The spectrum was recorded using a 1260 Infinity II HPLC system with DAD and a MabPac RP column (3.0x100 mm, 4 µm). 5 µL of purified protein was injected and the gradient run from 80 % water:TFA (99.9:0.1 v/v) and 20 % acetonitrile:water:TFA (90:9.9:0.1 v/v/v) to 20 % water:TFA (99.9:0.1 v/v) and 80 % acetonitrile:water:TFA (90:9.9:0.1 v/v/v) within 3 minutes followed by an isocratic step for another 3 min. Flow rate was 0.5 mL/min and the column compartment temperature was 50 °C.



Mass Spectrometry - Recombinant mouse IL-1 beta protein (Active) (ab259421)

M + 0.61 Da (Calc. mass 17451.39).

The spectrum was recorded with a 6545XT AdvanceBio LC/Q-TOF (Agilent Technologies) and a MabPac RP column (42.1x50 mm, 4 µm, Thermo Scientific). 5 µL of purified protein was injected and the gradient run from 85 % water:FA (99.9:0.1 v/v) and 15 % acetonitrile:FA (90:9.9:0.1 v/v/v) to 55 % water:FA (99.9:0.1 v/v) and 45 % acetonitrile:FA (90:9.9:0.1 v/v/v) within 3 minutes followed by an isocratic step for another 2.5 min. Flow rate was 0.4 mL/min and the column compartment temperature was 60 °C. Data was analysed and deconvoluted using the Bioconfirm software (Agilent Technologies).