abcam

Product datasheet

Human IL-1 beta ELISA Kit ab46052

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Overview

Product name Human IL-1 beta ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
6				4.5%

Inter-assay

Sample	n	Mean	SD	CV%
6				8.7%

Sample type Cell culture supernatant, Serum, Plasma

Assay type Sandwich (quantitative)

Sensitivity 6.5 pg/ml

Range 15.6 pg/ml - 500 pg/ml

Recovery 102.2 %

Sample specific recovery

Sample type	Average %	Range
Serum	102.2	15.6pg/ml - 500pg/ml

Assay time 3h 45m

Assay duration Multiple steps standard assay

Species reactivity **Reacts with:** Human

Product overview Abcam's Human IL-1 beta ab46052 *in vitro* ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of IL-1 beta in Human serum, plasma, buffered solutions or cell culture medium.

A monoclonal antibody specific for IL-1 beta has been coated onto the wells of the microtiter strips provided. Samples, including standards of known IL-1 beta concentrations, control specimens or unknowns are pipetted into these wells. During the first incubation, the standards or

samples and a biotinylated monoclonal antibody specific for IL-1 beta are simultaneously incubated. After washing, the enzyme Streptavidin-HRP, that binds the biotinylated antibody is added, incubated and washed. A TMB substrate solution is added which acts on the bound enzyme to induce a colored reaction product. The intensity of this colored product is directly proportional to the concentration of IL-1 beta present in the samples.

This kit will recognize both endogenous and recombinant Human IL-1 beta.

Platform Microplate

Properties

Storage instructions Store at +4°C. Please refer to protocols.

Components	Identifier	1 x 96 tests	2 x 96 tests	1 x 96 tests
10X Standard Diluent Buffer	Black	1 x 15ml	1 x 25ml	1 x 15ml
200X Wash Buffer	White	1 x 10ml	2 x 10ml	1 x 10ml
Biotinylated Antibody Diluent	Red	1 x 7.5ml	1 x 13ml	1 x 7.5ml
Biotinylated anti-IL-1 beta	Red	1 x 400µl	2 x 400µl	1 x 400µl
Chromogen TMB Substrate Solution		1 x 11ml	1 x 24ml	1 x 11ml
Control	Silver	2 vials	4 vials	2 vials
HRP Diluent	Red	1 x 12ml	1 x 23ml	1 x 12ml
IL-1 beta Microplate (12 x 8 well strips)		1 unit	2 units	1 unit
IL1 beta standard	Yellow	2 vials	4 vials	2 vials
Standard Diluent (Serum)		1 x 7ml	2 x 7ml	1 x 7ml
Stop Reagent	Black	1 x 11ml	2 x 11ml	1 x 11ml
Streptavidin-HRP		2 x 5µl	4 x 5µl	2 x 5µl

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).

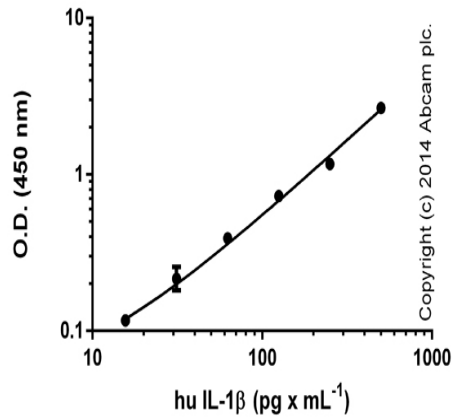
Sequence similarities Belongs to the IL-1 family.

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

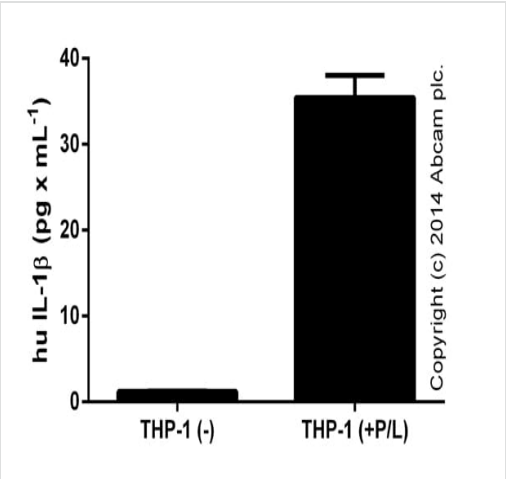
fully understood (PubMed:24201029). On the basis of experimental results, several unconventional secretion mechanisms have been proposed. 1. Secretion via secretory lysosomes: a fraction of CASP1 and IL1B precursor may be incorporated, by a yet undefined mechanism, into secretory lysosomes that undergo 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



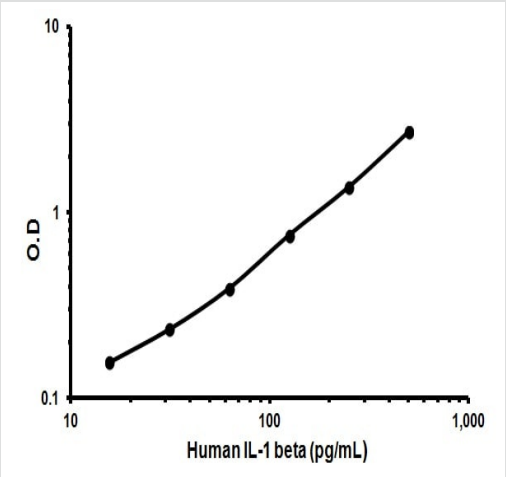
ELISA: IL-1 beta Human ELISA Kit (ab46052)

Standard curve of human IL-1β in standard diluent with background signal subtracted (duplicates; +/- SD).



IL-1β detected in supernatants from control THP-1 cells (-) or cells stimulated for 24 hours with 50 ng x mL^{-1} of PMA (**ab120297**) and 1 ug x mL^{-1} LPS (Sigma) for the last 6 hours (P+L).

ELISA: IL-1 beta Human ELISA Kit (ab46052)



Representative Standard Curve using ab46052

Typical Standard Curve

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