Simoa® Mouse IL-1β Discovery Kit

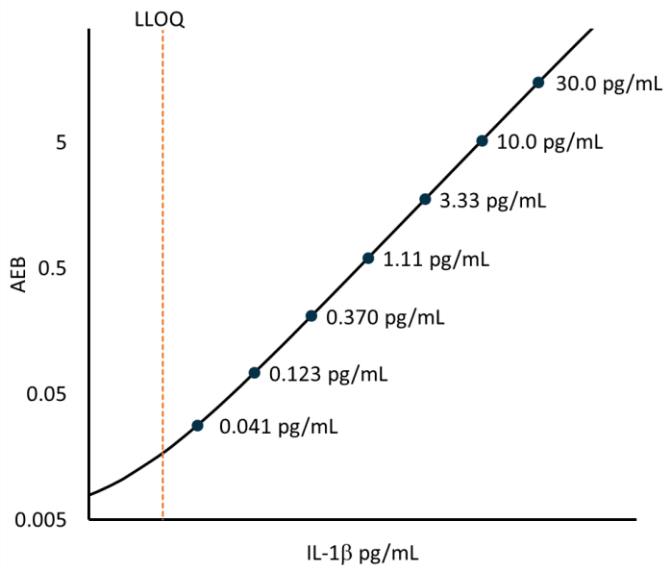
HD-1/HD-X Data Sheet

Item 102517

Description

The IL-1 family consists primarily of three proteins: IL-1α, IL-1β (agonists) and IL-1ra (antagonist) which interact with the IL-1 receptor. IL-1β shares 33% homology with IL-1α. IL-1β exists as a 33 kDa precursor which is cleaved by caspase-1 into its 17 kDA active form. It is unknown how IL-1β is actively secreted but it is suggested exocytosis, transport by multi-drug resistance transporters, and cell death may all play a role. Knockout models of IL-1β show no gross physiological detriment, though its role is suspected to function in disease states rather than healthy tissue. Evidence shows potential involvement in Long Term Potentiation demonstrating increases following induction, and the prevention of induction with a competitive antagonist. IL-1β is believed to be part of an inflammatory response thought to be protective to insult and injury but often goes awry. There is a distinguishable link between oxidative stress, glutamate excitotoxicity and IL-1β.

Calibration Curve: Calibrator concentrations and Lower Limit of Quantification depicted.



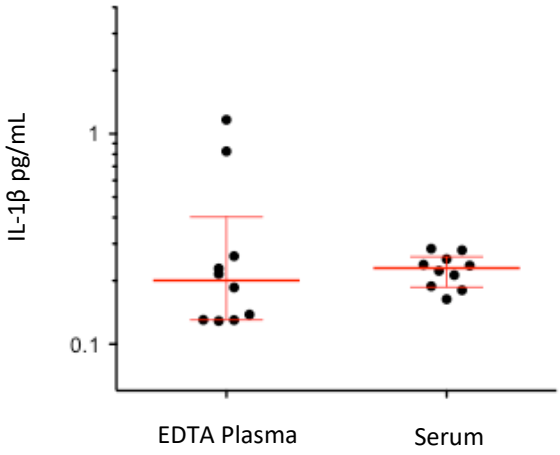
Lower Limit of Quantification (LLOQ): Triplicate measurements of serially diluted calibrator were read back on the calibration curve over 1 reagent lot on 1 instrument (5 runs total).

Limit of Detection (LOD): Calculated as 2.5 standard deviations from the mean of background signal read back on each calibration curve over 1 reagent lot across 4 instruments (6 runs total).

LLOQ	**0.021 pg/mL** pooled CV 19.7% mean recovery 106%
LOD	**0.004 pg/mL** range 0.001–0.070 pg/mL
Dynamic range (serum and plasma)	0–120 pg/mL
Diluted Sample volume*	100 µL per measurement
Tests per kit	192

***See Kit Instruction for details**

Endogenous Sample Reading: IL-1β in EDTA plasma (n=10) and serum (n=10) from non-medicated, non-immunized mice. Error bars depict median and interquartile ranges.



Sample Type	Median IL-1β pg/mL	% Above LOD
EDTA Plasma	0.201	100%
Serum	0.230	100%

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Precision: Representative precision was estimated with repeated assay of serum and plasma samples using five instruments and one reagent lot. Within-run and between-run CVs are depicted in the following table. Within-run CVs reflect average CVs across 5 experiments of 3 replicates each.

Sample	Mean (pg/mL)	Within run CV	Between run CV
Plasma Sample 1	1.17	6.14%	9.34%
Serum Sample 2	7.79	2.79%	6.61%
Serum Sample 3	72.9	4.30%	7.10%

Spike and Recovery: IL-1β spiked into 2 serum and 2 plasma samples at 2 levels.

Dilution Linearity (Plasma): Spiked plasma pools diluted serially from MRD (4x) to 128x with Sample Diluent.

Dilution Linearity (Serum): Spiked serum pools diluted serially from MRD (4x) to 128x with Sample Diluent.

Spike and Recovery (Serum/Plasma)	**Mean = 95.6%** Range: 89–100%
Dilution Linearity (Plasma, 128x)	**Mean = 112.4%** Range: 104.5–125.0%
Dilution Linearity (Serum, 128x)	**Mean = 113.7%** Range: 103.5–127.4%

Specificity (Competition): 2 serum spiked serum samples competitively inhibited with unlabeled IL-1β antibody.

Specificity (Cross Reactivity): Mouse IL-1α spiked into buffer at 30 pg/mL.

Specificity (Competition)	**94.5%**
Specificity (Cross Reactivity)	**0.08%**

The Simoa Mouse IL-1β Discovery assay kit is formulated for use on the SR-X®, HD-1, or HD-X® platform. Data in this document was obtained from runs on the HD-1 platform unless otherwise noted. Some differences in performance claims between SR-X and HD-1/HD-X may be observed when comparing datasheets for these platforms. This may be due to experiments run at different time-points with different reagent lots and different samples, or it may be due to minor differences in antibody and analyte behavior in the different assay formats.

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