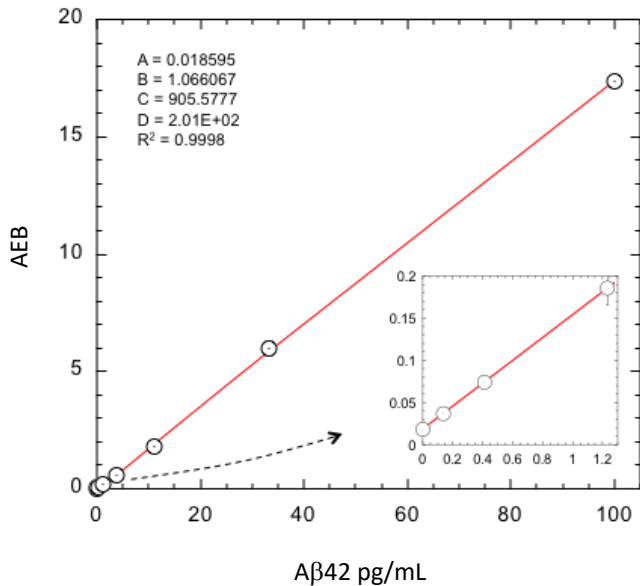


Description

Aβ42 is a 42 amino acid proteolytic product from the amyloid precursor protein that has gained considerable attention as a biomarker correlating with Alzheimer disease (AD) onset, mild cognitive impairment, vascular dementia, and other cognitive disorders. Amyloid beta (Aβ) peptides (including the shorter Aβ38 and Aβ40 isoforms) are produced by many cell types in the body but the expression is particularly high in the brain. Accumulation of Aβ in the form of extracellular plaques is a neuropathological hallmark of AD and thought to play a central role in the neurodegenerative process. Substantial clinical validation has now been developed around disease relevance of cerebrospinal fluid (CSF) levels of Aβ42, and there follows a significant interest in measuring blood levels of this marker. Concentrations of Aβ42 in blood are over 100-fold lower than in cerebrospinal fluid, (typically single pg/mL range), requiring very high analytical sensitivity for its reliable measurement. Determinations in serum samples are not reported due to high variability of Aβ42 in some healthy donor sample sets. This assay is for research use only and not for use in diagnostic procedures.

Calibration Curve: Four-parameter curve fit parameters are depicted.



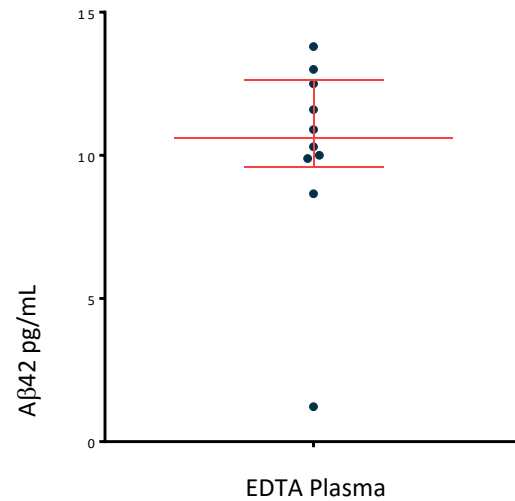
Lower Limit of Quantification (LLOQ): Triplicate measurements of serially diluted calibrator were read back on the calibration curve over 2 reagent lots across 3 instruments (13 runs total).

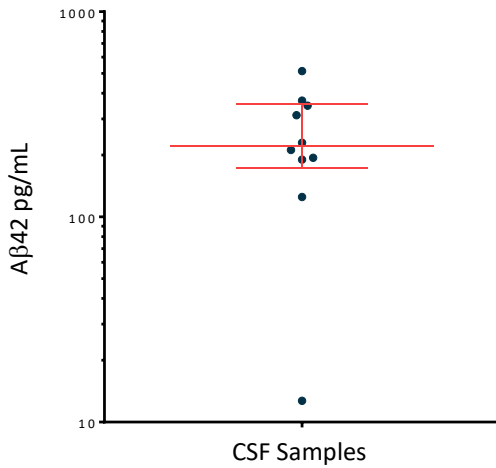
Limit of Detection (LOD): Calculated as 2.5 standard deviations from the mean of background signal read back on each calibration curve over 2 reagent lots across 3 instruments (13 runs total).

LLOQ	0.137 pg/mL pooled CV 19.4% mean recovery 103%
LOD	0.044 pg/mL range 0.0017–0.108 pg/mL
Dynamic range (Plasma)	0–400 pg/mL
Diluted Sample volume*	100 μL per measurement
Tests per kit	96

*See Kit Instruction for details

Endogenous Sample Reading: Healthy donor EDTA plasma (n=10) was measured. 10 CSF samples were measured. Error bars depict median with interquartile range.





Sample Type	Median Aβ42 pg/mL	% Above LOD
CSF Sample	221	100%
Plasma	10.6	100%

Precision: Six samples consisting of four plasma-based panels and two Aβ42 controls were assayed in replicates of three at two separate times per day for five days using a single lot of reagents and calibrators. Analysis of variance (fully nested ANOVA) results are summarized in the following table.

Sample	Mean (pg/mL)	Within run CV	Between run CV	Between day CV
Control 1	2.37	3.9%	10.7%	3.8%
Control 2	51.8	5.7%	6.7%	2.3%
Panel 1	4.76	7.9%	12.7%	0.0%
Panel 2	7.40	4.1%	3.0%	2.4%
Panel 3	9.09	10.0%	4.3%	3.8%
Panel 4	13.7	7.7%	8.8%	0.0%

Spike and Recovery: Aβ42 spiked into 2 plasma samples at 2 levels.

Admixture Linearity: High Aβ42 plasma sample admixed with low Aβ42 sample, mean of 12 levels.

Dilution Linearity: 1 spiked plasma sample diluted 2x serially from MRD (4x) to 128x with Sample Diluent.

Spike and Recovery (Plasma)	Mean = 70.5% Range: 48.5-106%
Admixture Linearity	Mean = 94.6% Range: 62.4-102%
Dilution Linearity (128x)	Mean = 80.0% Range: 75.1-96.0%

The Simoa Aβ42 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.