

Visinin-like protein 1 levels in blood and CSF as emerging markers for Alzheimer's and other neurodegenerative diseases

Supplementary material

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Assay parallelism

Multiple CSF and serum specimen were prepared in a dilution series in order to investigate assay parallelism. The CVs for the different diluted CSF samples were determined to be below 15 % except for the neat CSF specimen. Back-calculated CSF VILIP-1 levels were calculated to be within the range of 83 % - 105 % in comparison to the corresponding CSF sample which was diluted in a ratio 1:4. In the neat CSF sample, 46 % of the mean back-calculated VILIP-1 levels compared to the corresponding CSF sample diluted 1:4 could be detected. Similarly, in diluted serum specimen CVs for VILIP-1 levels were determined to be below 15 %. Besides, back-calculated VILIP-1 levels were determined to be in the range of 90 % – 110 % compared to the corresponding serum specimen which was diluted in a ratio 1:4 (Fig. S1).

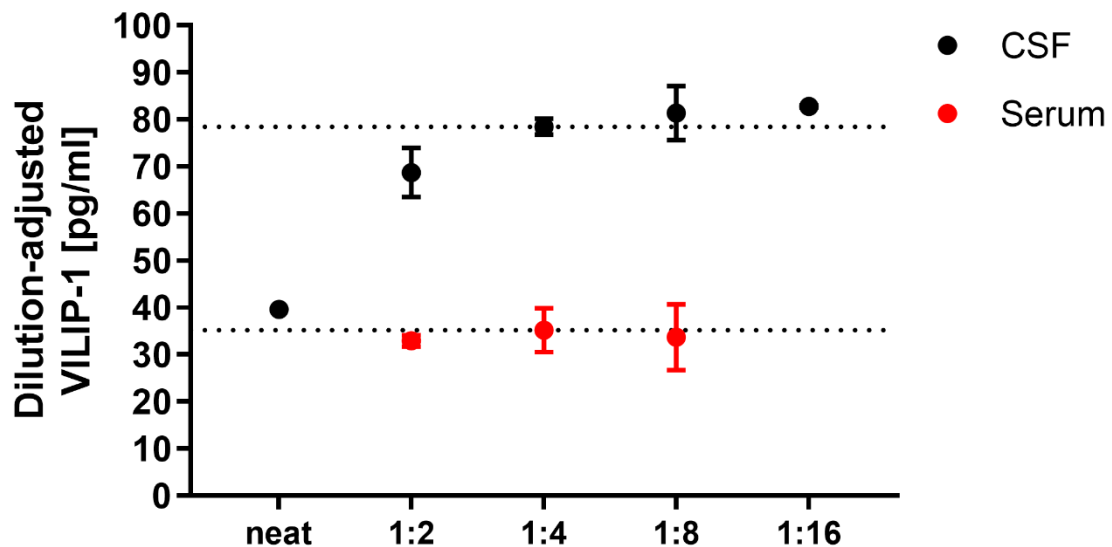


Figure S1. Assay parallelism.

Endogenous VILIP 1 concentrations were analyzed in CSF and serum samples. Black circles depict CSF and red circles results for serum samples. Results are reported as mean dilution-adjusted VILIP 1 concentrations \pm standard deviation. CSF, cerebrospinal fluid; VILIP 1 Visinin-like protein 1.

Pre-analytical stability of CSF and serum VILIP-1

In order to investigate the pre-analytical stability of CSF and serum VILIP-1 multiple independent serum and CSF samples were subjected to experimental freeze/thaw and storage conditions. After four experimental freeze/thaw cycles serum VILIP-1 concentrations were determined to be within 82 % and 115 % of the reference value (Fig. S2C). CSF VILIP-1 specimens were assessed for two freeze/thaw cycles only. After two experimental freeze/thaw cycles the CSF VILIP-1 levels were found to be within the range of 97 % and 102 % of the reference value (Fig. S2A). When assessing storage stability over 120 h storage at room temperature, serum VILIP-1 concentrations were found to be in the range between 97 % and 110 % of the reference values (Fig. S2D) and CSF VILIP-1 concentrations were found at 90 % of the reference sample (Fig. S2B). Similarly, when storage stability was investigated over 120 h storage at 4 °C, serum VILIP-1 concentrations were determined to be in the range of 107 % and 109 % of the reference values (Fig. S2D) and CSF VILIP-1 levels were found to be at 113 % of the reference samples (Fig. S2B).

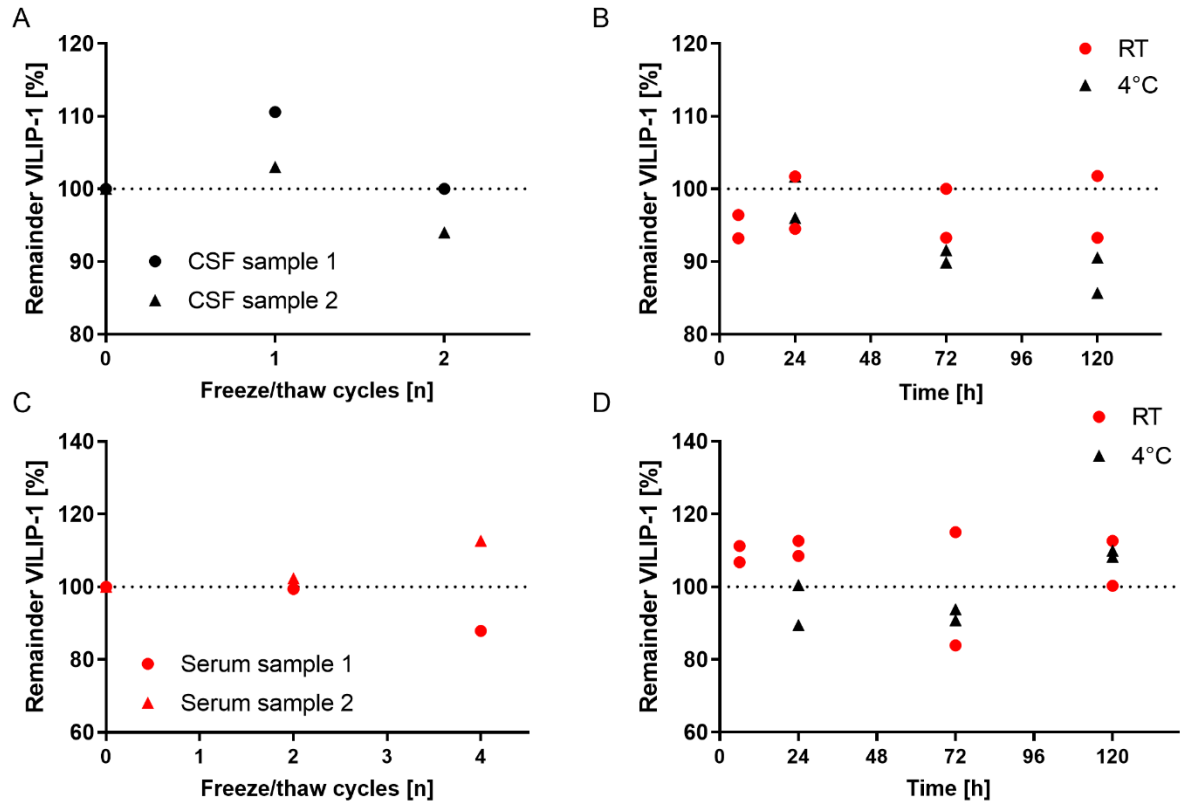


Figure S2. Determination of stability of CSF and serum VILIP-1.

(A) CSF VILIP-1 results for experimental freeze/thaw cycles. (B) CSF VILIP-1 results for different experimental storage stability conditions. Two independent CSF samples were analyzed. (C) Serum VILIP-1 results for experimental freeze/thaw cycles. (D) Serum VILIP-1 results for experimental storage stability conditions. Two independent serum samples were analyzed. Circles depict RT and triangles 4 °C results. Symbols represent mean VILIP-1 levels from duplicate measurement, normalized to the reference sample. RT, room temperature; VILIP-1, Visinin-like protein 1