Development and Characterization of a Validated Multiplex Panel for Detection of Human Aβ Peptides in Human CSF

Sara Hapip, Aishwarya Ranganathan, Leonid Dzantiev, David Stewart, Jill Dunty, Robert Umek, Pankaj Oberoi, and Jacob N. Wohlhuter
Meso Scale Discovery (MSD), Rockville, MD 20850

Abstract

To develop and validate a multiplex assay panel for measurement of candidate biomarkers of Alzheimer’s disease (AD) in human CSF, we measured the concentrations of three Aβ peptides in human CSF using a validated multiplex assay panel. The peptides include Aβ40, Aβ42, and Aβ38, and were measured using a validated immunoassay platform with high sensitivity and precision. The assay panel was developed using MSD’s MULTI-ARRAY® technology and was optimized to minimize CSF matrix effects and interferences. The assay format and protocol were validated using dilution controls and recovery experiments.

Materials and Methods

Individual patient CSF samples (n=10) were diluted 2-, 4-, and 8-fold with Diluent 35. Measured concentrations were corrected for dilution factors. To develop and validate the multiplex assay panel, we measured candidate biomarkers of AD in human CSF. We measured the concentrations of Aβ40, Aβ42, and Aβ38 in human CSF using a validated immunoassay platform with high sensitivity and precision. The assay panel was developed using MSD’s MULTI-ARRAY® technology and was optimized to minimize CSF matrix effects and interferences. The assay format and protocol were validated using dilution controls and recovery experiments.

Results

Concentration of Aβ40, Aβ42, and Aβ38 in human CSF were measured across three kit lots. Error bars: one standard deviation. The Aβ40 assay exhibited minor cross-reactivity with some related Aβ peptides, including Aβ1-41. The Aβ42 assay exhibited minor cross-reactivity with some related Aβ peptides, including Aβ1-41. The Aβ38 assay exhibited minor cross-reactivity with some related Aβ peptides, including Aβ1-41.

Conclusions

The Aβ Peptide Panel 1 with Clone 4-G2 Detection

Methods: The Aβ Peptide Panel 1 with Clone 4-G2 Detection was validated for use with mouse plasma and rodent immunomagnetic bead enrichment. The assay was validated for use with mouse plasma and rodent immunomagnetic bead enrichment.

Results: The Aβ Peptide Panel 1 with Clone 4-G2 Detection was validated for use with mouse plasma and rodent immunomagnetic bead enrichment. The assay was validated for use with mouse plasma and rodent immunomagnetic bead enrichment.

Conclusions: The Aβ Peptide Panel 1 with Clone 4-G2 Detection was validated for use with mouse plasma and rodent immunomagnetic bead enrichment. The assay was validated for use with mouse plasma and rodent immunomagnetic bead enrichment.