ADNI Alzheimer's Disease Neuroimaging Initiative

Plasma Aβ42/Aβ40 Ratio as a Predictor of Brain Amyloidosis

Vitaliy Ovod[1], James G. Bollinger[1], Kwasi G. Mawuenyega[1], Yan Li[3], Nicholas Oatts, Haiyan Liu[1], Randall J. Bateman[1,2,4]*

[1]Department of Neurology, [2]Knight Alzheimer's Disease Research Center, [3]Division of Biostatistics, [4]Hope Center for Neurological Disorders
Washington University School of Medicine, St. Louis, MO, USA.

Abstract

We hypothesize that plasma Ab42/Ab40 ratio, as measured by a high precision assay, can accurately predict central nervous system amyloidosis using amyloid PET as a reference standard.

Method

Received plasma samples were stored at -80°C until analysis. Plasma aliquots thawed at 21°C/800 RPM for 10 minutes and centrifuged at 21°C/10000 RCF for 5 minutes prior to immunoprecipitation. Targeted Aβ isoforms were immunoprecipitated with an anti-Aβ mid-domain antibody (HJ5.1) using a KingFisher (Thermo) automated immunoprecipitation platform. Immuno-enriched fractions were subsequently digested with Lys-N protease and subjected to liquid chromatography tandem mass spectrometry (LC-MS/MS) as previously described (6). Absolute Aβ isoform concentrations were determined with a 15N-labeled internal standard for each isoform.

Version Information

This document is new and prepared on 2019, June 12 for ADNI data to be uploaded to LONI and will be assign an initial revision version 1.0.

Dataset Information

This methods document applies to the following dataset(s) available from the ADNI repository:

Dataset Name	Date Submitted
Bateman Lab - Plasma Abeta42:40 [ADNI 1 Pilot] Version 1.0	12 June 2019

References

1. Vitaliy Ovod, Kara N. Ramsey, Kwasi G. Mawuenyega, Jim G. Bollinger, Terry Hicks, Theresa Schneider, Melissa Sullivan, Katrina Paumier, David M. Holtzman, John C. Morris,

Tammie Benzinger, Anne M. Fagan, Bruce W. Patterson, Randall J. Bateman: *Amyloid β concentrations and stable isotope labeling kinetics of human plasma specific to central nervous system amyloidosis*. Alzheimer's & dementia: the journal of the Alzheimer's Association 08/2017; 13(8):841-849., DOI:10.1016/j.jalz.2017.06.2266

About the Authors

This document was prepared by Vitaliy Ovod, James G. Bollinger - all Washington University in St. Louis School of Medicine, Department of Neurology. For more information please contact **Vitaliy Ovod** at **(314) 747-0557** or by email at **ovodvo@wustl.edu**.