Supplementary Material

Plasma Amyloid-β as a Biomarker in Alzheimer’s Disease: The AIBL Study of Aging

James K. Lui\textsuperscript{a,b,1}, Simon M. Laws\textsuperscript{a,b,1}, Qiao-Xin Li\textsuperscript{c,d}, Victor L. Villemagne\textsuperscript{c,e}, David Ames\textsuperscript{f,g}, Belinda Brown\textsuperscript{a,b}, Ashley I. Bush\textsuperscript{c,d}, Karl De Ruyck\textsuperscript{a,b}, Jasmin Dromey\textsuperscript{a}, Kathryn A. Ellis\textsuperscript{c,f,g}, Noel G. Faux\textsuperscript{c,h}, Jonathan Foster\textsuperscript{a,b,1}, Christopher Fowler\textsuperscript{e}, Veer Gupta\textsuperscript{a,b}, Peter Hudson\textsuperscript{c,i}, Katrina Laughton\textsuperscript{c,d}, Colin L. Masters\textsuperscript{c,h}, Kelly Pertile\textsuperscript{c}, Alan Rembach\textsuperscript{c}, Mira Rimajova\textsuperscript{a,b}, Mark Rodrigues\textsuperscript{a,b}, Christopher C. Rowe\textsuperscript{e}, Rebecca Rumble\textsuperscript{e}, Cassandra Szoke\textsuperscript{g,j}, Kevin Taddei\textsuperscript{a,b}, Tania Taddei\textsuperscript{a,b}, Brett Trounson\textsuperscript{c}, Vanessa Ward\textsuperscript{a,b} and Ralph N. Martins\textsuperscript{a,b,∗} for the AIBL Research Group\textsuperscript{k}

\textsuperscript{a}Centre of Excellence for Alzheimer’s Disease Research & Care, School of Exercise Biomedical and Health Sciences, Edith Cowan University, Joondalup, Western Australia, Australia
\textsuperscript{b}Sir James McCusker Alzheimer’s Disease Research Unit (Hollywood Private Hospital), Perth, Western Australia, Australia
\textsuperscript{c}Mental Health Research Institute, The University of Melbourne, Parkville, Victoria, Australia
\textsuperscript{d}Department of Pathology, The University of Melbourne, Parkville, Victoria, Australia
\textsuperscript{e}Department of Nuclear Medicine & Centre for PET, Austin Health, Heidelberg, Victoria, Australia
\textsuperscript{f}Academic Unit for Psychiatry of Old Age, Department of Psychiatry, The University of Melbourne, St. Vincent’s Aged Psychiatry Service, St George’s Hospital, Victoria Australia
\textsuperscript{g}National Ageing Research Institute, Parkville, Victoria, Australia
\textsuperscript{h}Centre for Neuroscience, The University of Melbourne, Parkville, Australia
\textsuperscript{i}Neurosciences Unit, Health Department of Western Australia, Perth, Western Australia, Australia
\textsuperscript{j}CSIRO, Parkville, Victoria, Australia
\textsuperscript{k}http://www.aibl.csiro.au/

Accepted 18 February 2010

\textsuperscript{1}These authors contributed equally to this work.

\textsuperscript{∗}Correspondence to: Professor Ralph N. Martins, School of Exercise, Biomedical and Health Science, Edith Cowan University, 270 Joondalup Dr, Joondalup, WA 6027, Australia. Tel.: +61 08 6304 5456; Fax: +61 08 6304 5851; E-mail: r.martins@ecu.edu.au.

ISSN 1387-2877/10/$27.50 © 2010 – IOS Press and the authors. All rights reserved
Supplementary Table 1

Pearson’s Correlation of PiB PET imaging with plasma Aβ measurements within clinical classifications. Comparison of correlations of Aβ₁₋₄₀, Aβ₁₋₄₂, and Aβ₁₋₄₂/Aβ₁₋₄₀ ratio (C) with SUVR within clinical classifications with overall correlations. Pearson’s correlations are presented from Perth (Site A) and Melbourne (Site B) sites. Data analysis was inclusive of only samples where both Site A and Site B were present.

<table>
<thead>
<tr>
<th>Site</th>
<th>All</th>
<th>(n = 256)</th>
<th>HC</th>
<th>(n = 167)</th>
<th>MCI</th>
<th>(n = 51)</th>
<th>AD</th>
<th>(n = 38)</th>
<th>All</th>
<th>(n = 256)</th>
<th>HC</th>
<th>(n = 167)</th>
<th>MCI</th>
<th>(n = 51)</th>
<th>AD</th>
<th>(n = 38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aβ₁₋₄₀</td>
<td>r</td>
<td>−0.046</td>
<td>0.013</td>
<td>0.154</td>
<td>0.033</td>
<td></td>
<td>0.120</td>
<td>0.131</td>
<td>0.151</td>
<td>−0.032</td>
<td>0.054</td>
<td>0.093</td>
<td>0.289</td>
<td>0.849</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>0.463</td>
<td>0.872</td>
<td>0.280</td>
<td>0.843</td>
<td></td>
<td>0.054</td>
<td>0.093</td>
<td>0.289</td>
<td>0.849</td>
<td>0.054</td>
<td>0.093</td>
<td>0.289</td>
<td>0.849</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aβ₁₋₄₂</td>
<td>r</td>
<td>−0.165</td>
<td>−0.095</td>
<td>0.089</td>
<td>0.047</td>
<td></td>
<td>−0.171</td>
<td>−0.148</td>
<td>−0.060</td>
<td>0.095</td>
<td>0.006</td>
<td>0.056</td>
<td>0.675</td>
<td>0.570</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>0.008</td>
<td>0.224</td>
<td>0.535</td>
<td>0.780</td>
<td></td>
<td>0.006</td>
<td>0.056</td>
<td>0.675</td>
<td>0.570</td>
<td>0.006</td>
<td>0.056</td>
<td>0.675</td>
<td>0.570</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aβ₁₋₄₂/Aβ₁₋₄₀ Ratio</td>
<td>r</td>
<td>−0.127</td>
<td>−0.116</td>
<td>−0.135</td>
<td>−0.047</td>
<td></td>
<td>−0.248</td>
<td>−0.217</td>
<td>−0.163</td>
<td>0.078</td>
<td>&lt; 0.001</td>
<td>0.005</td>
<td>0.252</td>
<td>0.640</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>0.015</td>
<td>0.135</td>
<td>0.344</td>
<td>0.782</td>
<td></td>
<td>&lt; 0.001</td>
<td>0.005</td>
<td>0.252</td>
<td>0.640</td>
<td>&lt; 0.001</td>
<td>0.005</td>
<td>0.252</td>
<td>0.640</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Supplementary Fig. 1. Correlation between plasma Aβ₁₋₄₂ compared to plasma Aβ₁₋₄₀ measured using the INNO-BIA plasma Aβ assay.

Supplementary Fig. 2. Correlation between plasma Aβ₁₋₄₂ compared to plasma Aβ₁₋₄₀ measured using the Mehta sandwich ELISA.
Supplementary Fig. 3. Comparison of the relationship between age and plasma Aβ_{1-42} levels between clinical classification.

A

\[ A_{\beta_{1-40}} \] (pg/ml)

HC: \( R = 0.134, P < 0.001 \)
MCI: \( R = 0.241, P = 0.008 \)
AD: \( R = 0.234, P = 0.001 \)

B

\[ A_{\beta_{1-42}} \] (pg/ml)

HC: \( R = -0.016, P = 0.676 \)
MCI: \( R = 0.082, P = 0.369 \)
AD: \( R = 0.082, P = 0.263 \)

C

\[ A_{\beta_{1-42}/A_{\beta_{1-40}}} \text{ Ratio} \]

HC: \( R = -0.117, P = 0.002 \)
MCI: \( R = -0.092, P = 0.315 \)
AD: \( R = -0.185, P = 0.011 \)
Supplementary Fig. 4. Correlation between plasma Aβ measurements at different sites. Measurement of both (A) Aβ₁₋₄₀ and (B) Aβ₁₋₄₂ showed reasonable correlation between Perth and Melbourne sites, resulting in reasonable correlation of (C) Aβ₁₋₄₂/Aβ₁₋₄₀ ratio between sites.