

**Supplemental Figure 1.** Line plots of total (dotted lines with x) and metabolite-corrected (solid lines with empty circles) plasma time activity curves (TACs), mean of 18 scans (the first scans of all participants) (A). The insert in A shows the first 5 min of TACs. Plots of parent fractions after the tracer injection, mean (empty circles) of the 18 scans with 1 SD bars (B).



**Supplemental Figure 2.** Scatter plots of regional V<sub>T</sub> data, 90 min analysis (=y) versus 120 (black dots) or 200 min (red dots) analyses, AD data alone (A) and with AD and OC data merged (B). Panels C through F (AD and OC data merged) respectively correspond to panels A through D of Fig. 4 (AD data alone).



**Supplemental Figure 3.** Boxplots of regional test-retest variability (TRV) estimates of plasma reference and reference tissue graphical analyses (PRGA and RTGA, respectively; variable: distribution volume ratio or DVR), and standard uptake value ratio (SUVR) of the 80 brain regions for AD and OC subjects. AD subjects showed lower median TRV values (2.8, 3.1, and 5.6% for DVR-PRGA, DVR-RTGA, and SUVR) than OC subjects (medians: 4.6, 3.9, and 6.7%, respectively). This finding, together with the finding of lower TVR values in high SUVR (>1.5) regions in AD (Fig. 5), TRV tended to be higher in regions with low SUVR values, which assured excellent TVR values in regions with SUVR > 1.5 (thus, relevant to tauneuroimaging of AD). Boxes indicate median, and upper 25<sup>th</sup> and 75<sup>th</sup> percentiles, and whiskers indicate the highest and lowest values excluding outlines (black dots; data points exceeding ± 2.7 SD). The horizontal dotted line indicates a desired TRV level of 10%.



**Supplemental Figure 4.** Line plots of mean  $V_T$  values of YC and OC subjects across the 40 brain regions (left and right merged), and in the cerebellum. The minimal and maximal in individual regions are plotted by small dots connected by vertical dotted lines.



**Supplemental Figure 5.** Line plots of tau-positive fractions (blue) and maximal SUVR values (red) of individual regions, relative to the highest SUVR values of subjects of all AD subjects. Three regions (per side) that had highest TPF or relative SUVR values were separately shown by circles and denoted as Top 3.