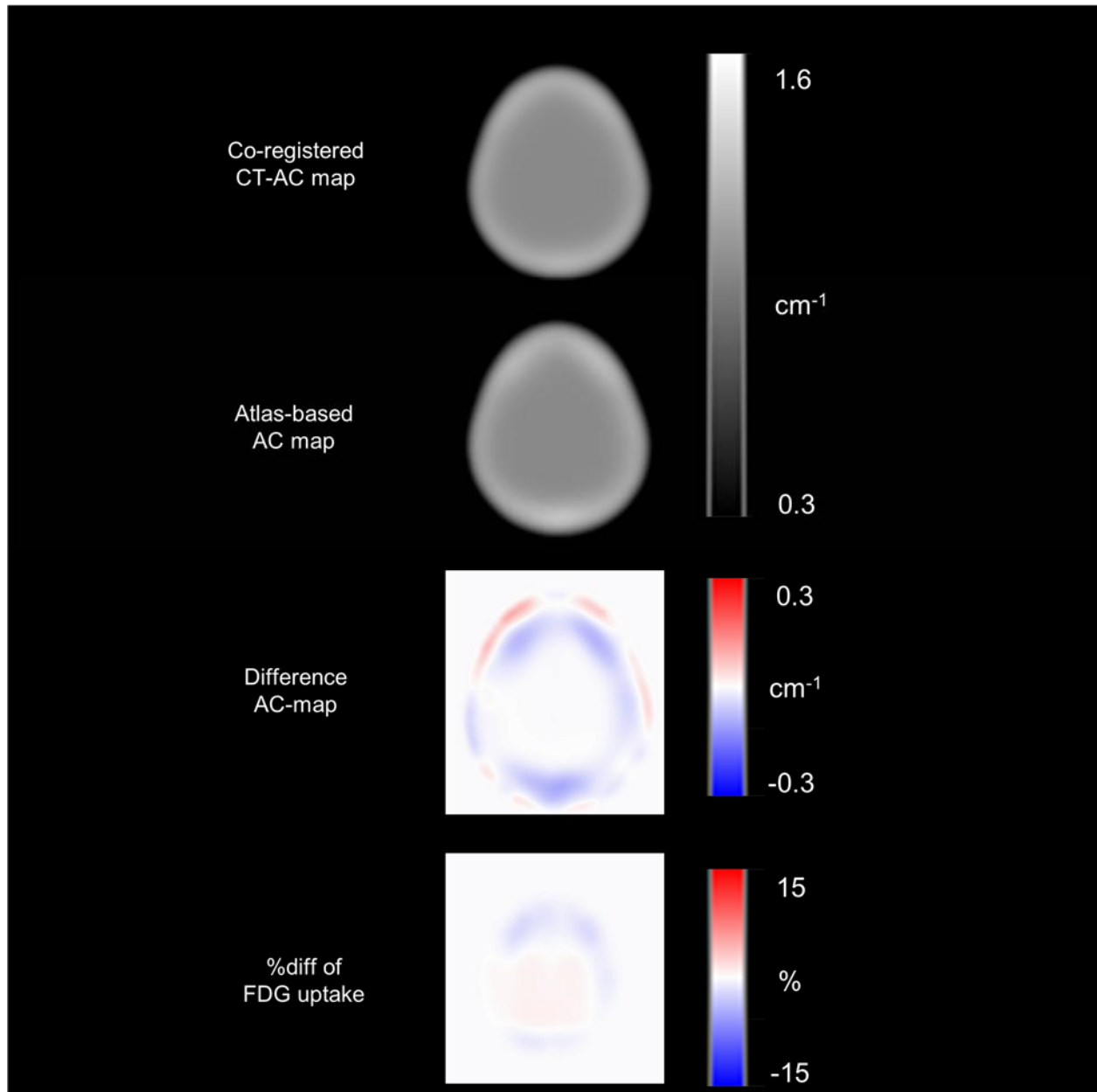
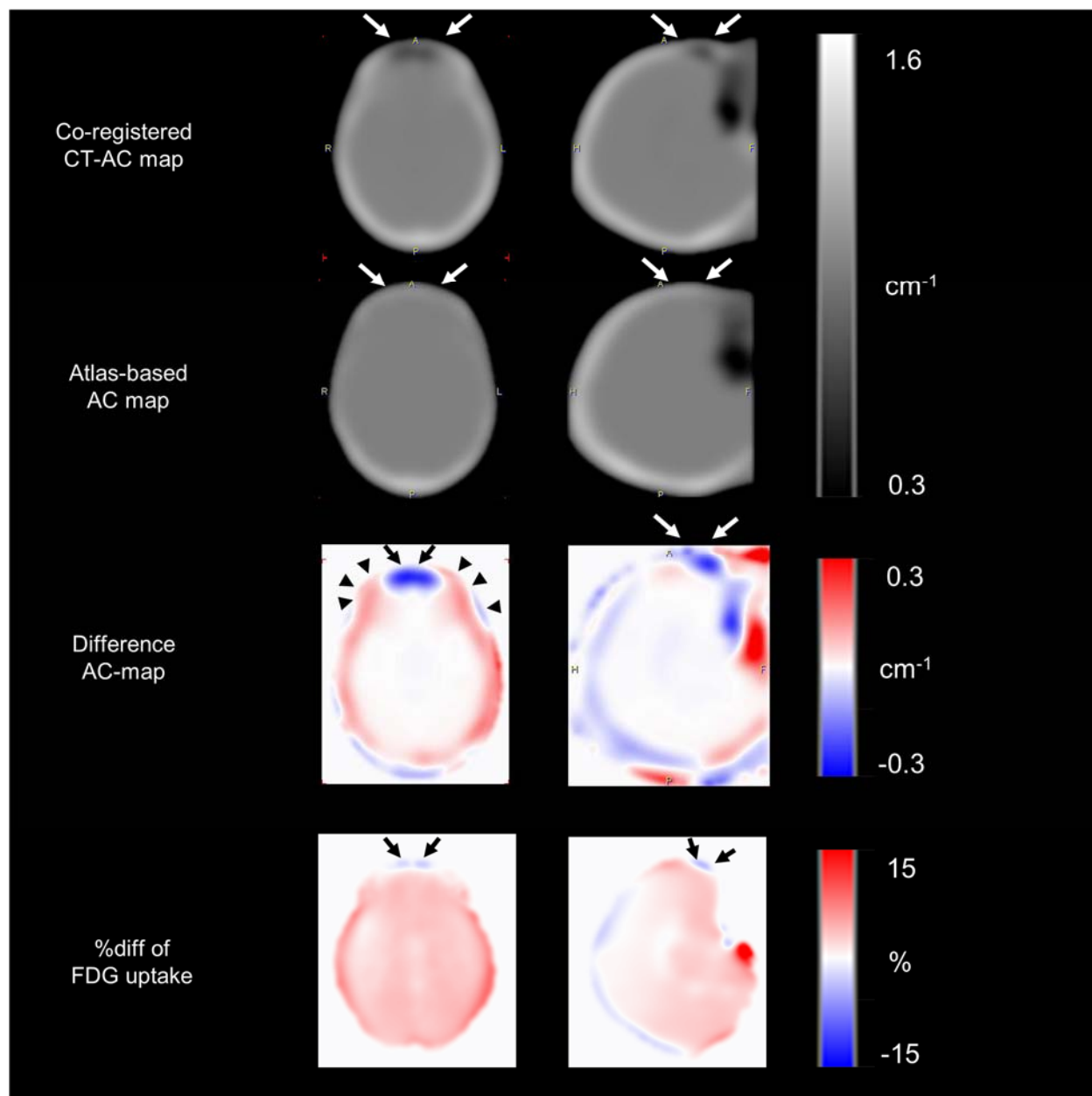


**Supplemental Figure 1.** 3D illustration of merged VOIs. Frontal lobe is blue, temporal lobe is green, occipital lobe is red, parietal lobe is purple, Insula and Cingulate Gyri is brown, central structure is yellow, and cerebellum is sky blue.

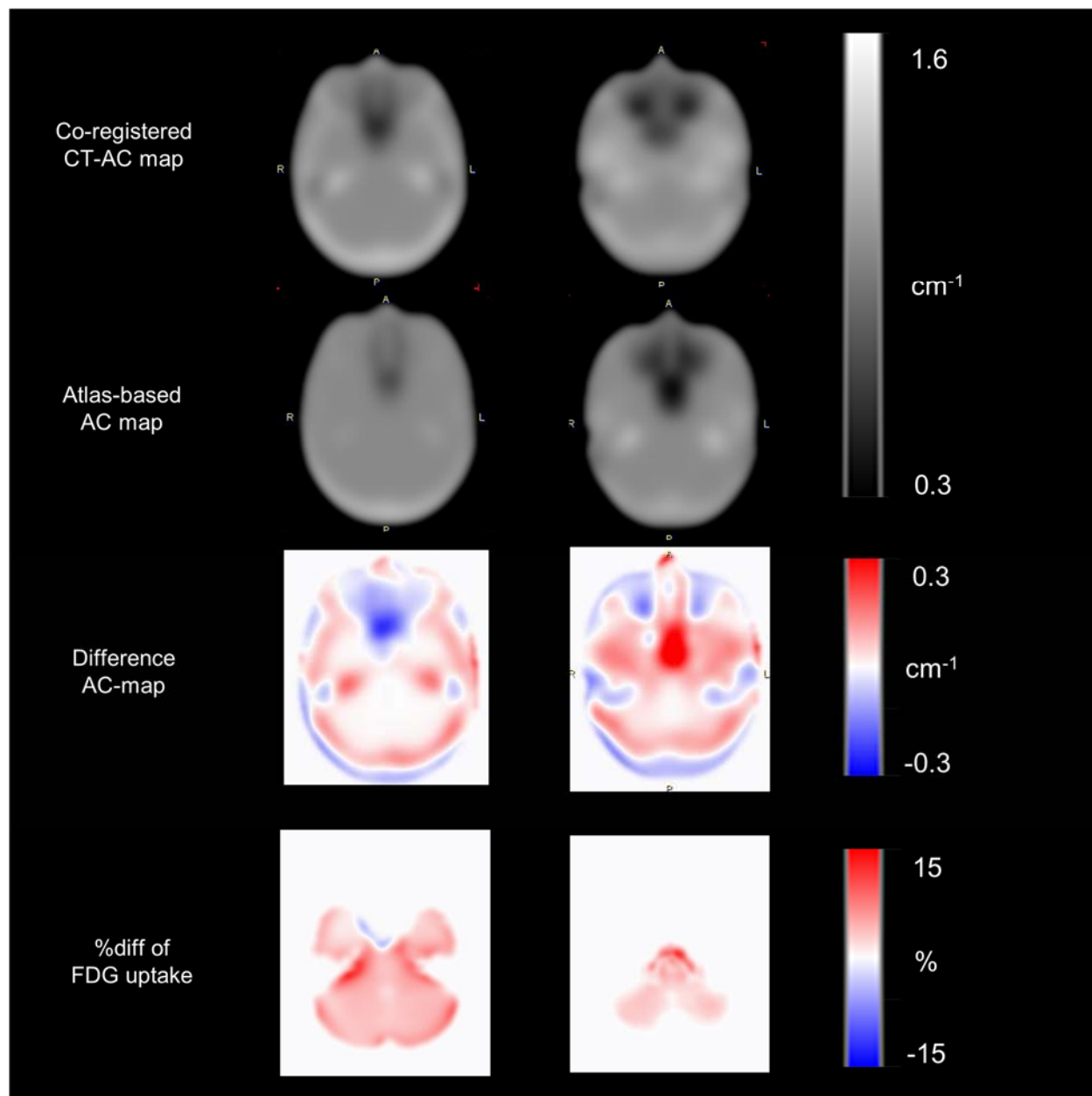
**Supplemental Figure 2.** Top row, co-registered CT-AC map; second row, Atlas-AC map; third row, %diff of AC map; bottom row, %diff of FDG uptake. All images were averaged from 8 normalized images.



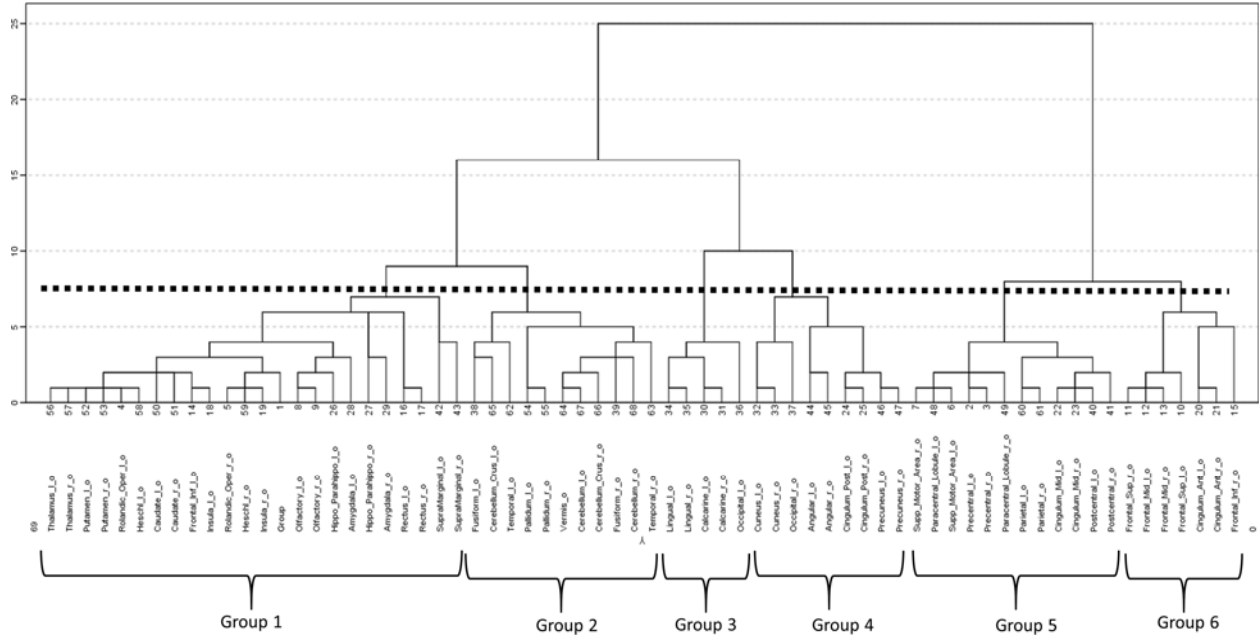
2. A; detailed evaluation of the upper part of the skull. Atlas-based AC map slightly overestimated skull. However, the impact of this error on the PET image is small.



2. B; frontal sinus evaluation. Frontal sinus was overestimated by Atlas-based AC map (arrows on AC-map images). However, the impact of this error on PET image is small (arrows on % diff of FDG uptake image). It is assumed that the adjacent bone, which is underestimated by Atlas-based AC map, compensates for this error (arrowheads on AC map difference image). Quantitative analysis also indicates minimal error; % diff of right- and left- Rectus gyri was  $2.84\% \pm 0.32$  and  $2.91\% \pm 0.33$ , respectively.



2. C; maxillary sinus evaluation. Mixed under- and over-estimation of Atlas-based AC map on Maxillary sinus and adjacent bone. The overall result is the underestimation of base of temporal lobe and cerebellum.



**Supplemental Figure 3.** The dendrogram results of 67 regions through the group-average agglomerative clustering algorithm.