Description of Additional Supplementary Files

Supplementary Data 1. A technical summary of the acquisition methods for WMH and metabolomic data in each study population.

Supplementary Data 2. Meta-GWAS of PC1 (WMH and insular CT) and regulated genes in the cerebral cortex

Supplementary Data 3. Two-sample Mendelian Randomization (MR) testing causal effects of WMH on insular or mean cortical thickness

Supplementary Data 4. GWAS-significant loci of PC1 (WMH and insular CT) and their associations with WMH or insular CT

Supplementary Data 5. Genome-wide significant loci of PC1 with insular CT and their association with loci of PC1 with mean CT in the present set of cohorts