

## **Description of Additional Supplementary file**

### **Supplementary Data 1**

Description: Genetic variants in the genome-wide significant loci in European ancestry GWAS meta-analysis.

### **Supplementary Data 2**

Description: Lead suggestive significant variants in European and African ancestry GWAS meta-analyses.

### **Supplementary Data 3**

Description: Genetic variants in the genome-wide significant loci in African-American ancestry GWAS meta-analysis.

### **Supplementary Data 4**

Description: Genetic variants with suggestive association in European ancestry GWAS meta-analyses.

### **Supplementary Data 5**

Description: Genetic variants with suggestive association in African ancestry GWAS meta-analyses.

### **Supplementary Data 6**

Description: Lead suggestive significant variants in multi-ancestry GWAS meta-analyses.

### **Supplementary Data 7**

Description: Genetic variants in the genome-wide significant loci in trans-ethnic GWAS meta-analysis using MR-MEGA.

### **Supplementary Data 8**

Description: Genetic variants with suggestive association in multi-ancestry meta-analyses.

### **Supplementary Data 9**

Description: Results of conditional analysis on kidney function (eGFR) and Alzheimer's disease in European ancestry GWAS meta-analysis.

### **Supplementary Data 10**

Description: Pathway-enrichment analysis based on European/African American/Trans-ethnic ancestry GWAS meta-analysis.

### **Supplementary Data 11**

Description: Linkage disequilibrium (LD) regression analysis based on European ancestry GWAS meta-analysis summary statistics.

### **Supplementary Data 12**

Description: Colocalization analysis on neurological traits, biomarkers, and kidney function.

**Supplementary Data 13**

Description: Results of association analysis of polygenic risk scores with Alzheimer's disease (AD), magnetic resonance imaging markers, and AD biomarkers as outcomes in the Rotterdam Study.

**Supplementary Data 14**

Description: Lookup of genome-wide significant variants associated with NfL in different GWAS included in the LD regression analysis.

**Supplementary Data 15**

Description: Association of genome-wide significant variants associated with NfL with CSF levels of ATN biomarkers of Alzheimer's disease in the MEMENTO cohort.

**Supplementary Data 16**

Description: Two-sample Mendelian randomization (MR) analysis.

**Supplementary Data 17**

Description: Participating cohort information.

**Supplementary Data 18**

Description: Studies included in the linkage disequilibrium (LD) score regression analysis and their heritability estimates.