

Description of Additional Supplementary Files

File name: Supplementary Data 1

Description: Collapse analysis of significant rare variants of regional QSM (discovery)

File name: Supplementary Data 2

Description: Collapse analysis of rare variants of regional QSM (replication cohort)

File name: Supplementary Data 3

Description: Power calculation of cohorts

File name: Supplementary Data 4

Description: Single variants information and LOVO results for variants from significant Gene-regional QSM associations

File name: Supplementary Data 5

Description: Gene-regional QSM associations conditioned on nearby associated common variants

File name: Supplement Data 6

Description: Collapse analysis of rare variants of regional QSM in different sex.

File name: Supplementary Data 7

Description: Collapse analysis of significant common variants of regional QSM (discovery)

File name: Supplementary Data 8

Description: Genes mapped to common variants that associated regional QSM in replication study

File name: Supplementary Data 9

Description: Identified gene for brain iron that have previously been reported in GWAS of any traits listed in the GWAS catalog.

File name: Supplementary Data 10

Description: Gene set enrichment analysis of significant genes using Gene Ontology and KEGG Ontology database

File name: Supplementary Data 11

Description: Protein-protein interaction network of significant QSM genes

File name: Supplementary Data 12

Description: Tissue-wide differential expression analysis of significant QSM genes using GTEx dataset

File name: Supplementary Data 13

Description: Tissue-wide differential expression analysis of significant QSM genes (exclude top 5 genes) using GTEx dataset

File name: Supplementary Data 14

Description: Gene set enrichment analysis of significant genes (exclude top 5 genes) using Gene Ontology and KEGG Ontology database

File name: Supplementary Data 15

Description: Causal relationships identified by Mendelian randomization analysis.

File name: Supplementary Data 16

Description: Causal relationships identified by Mendelian randomization analysis

using other methods.

File name: Supplementary Data 17

Description: Inverse causal relationships identified by Mendelian randomization analysis.

File name: Supplementary Data 18

Description: Inverse causal relationships identified by Mendelian randomization analysis using other methods.

File name: Supplementary Data 19

Description: Causal relationships identified by multivariate Mendelian randomization analysis.

File name: Supplementary Data 20

Description: Field ID and description for regional QSM in the UK Biobank.