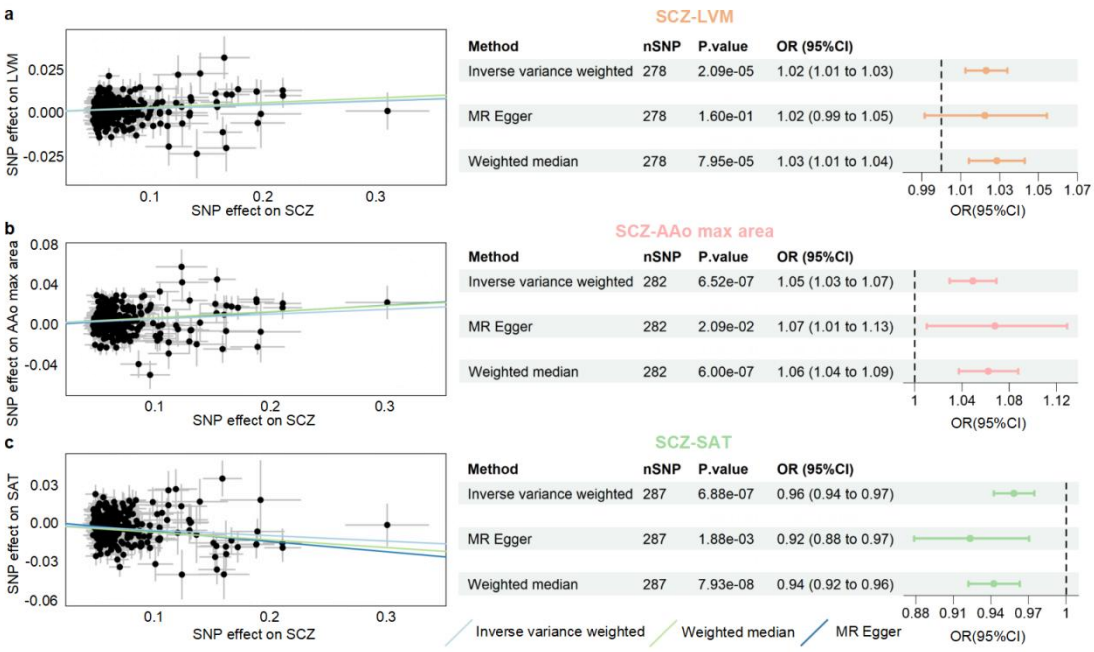
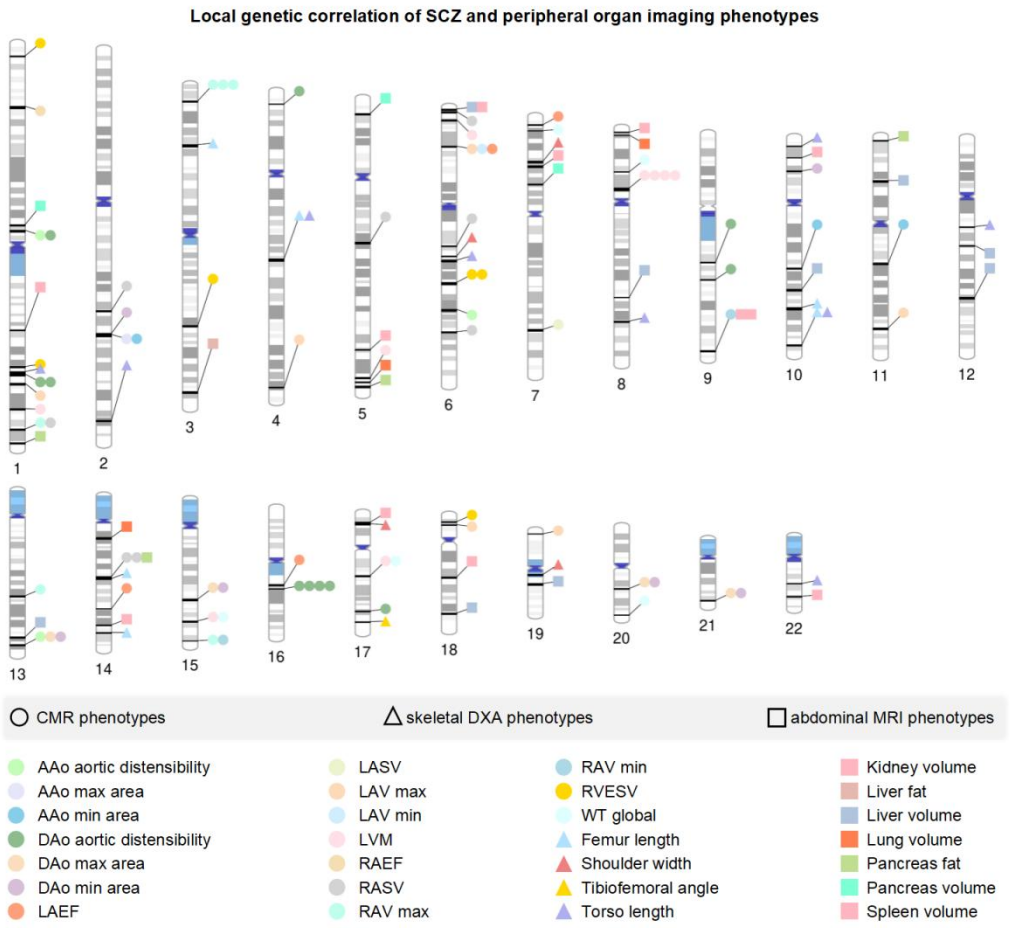
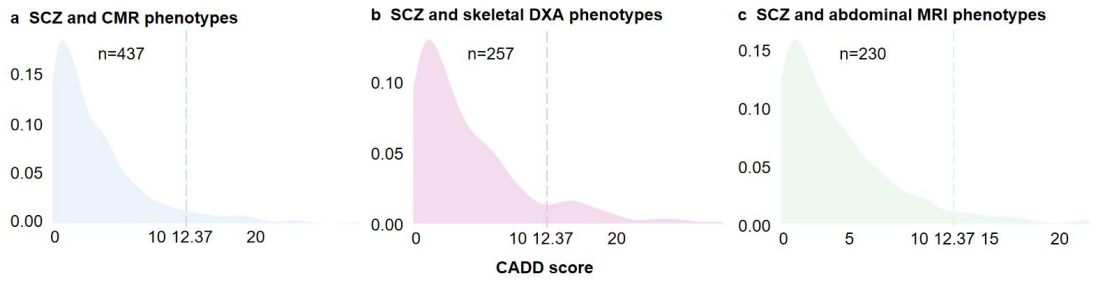


Supplementary Figure 1. Causal effects between SCZ and peripheral organ imaging phenotypes. a-c. The detailed results for MR analyses between SCZ and LVM **(a)**, AAo max area **(b)** and SAT **(c)**. Each point on the left panel represents an individual SNP with its effect size on SCZ (x-axis) and imaging phenotype (y-axis), and each line demonstrates one MR method. Abbreviations: AAo max area, ascending aorta maximum area; LVM, left ventricular myocardial mass; OR, odds ratio; SAT, subcutaneous adipose tissue measurement; SCZ, schizophrenia; SNP, single nucleotide polymorphism; WT global, global myocardial-wall thickness at end-diastole; 95% CI, 95% confidence interval.

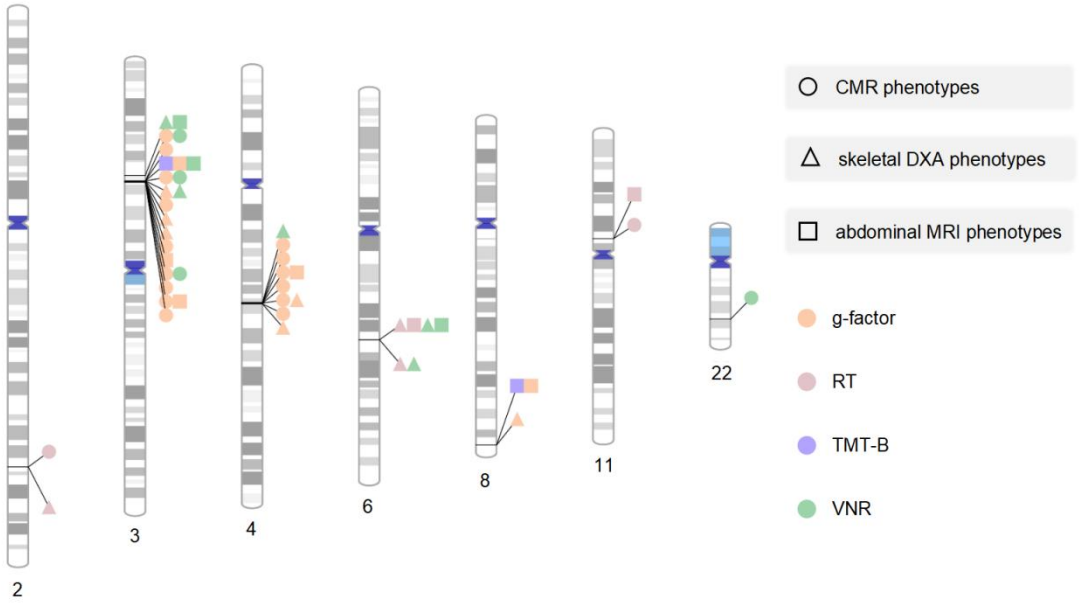


Supplementary Figure 2. Genomic locations of significant associated loci between SCZ and peripheral organ imaging phenotypes. The genomic locations of loci where LAVA identifies significant genetic associations ($q < 0.05$) between SCZ and peripheral organ imaging phenotypes. Abbreviations: AAo aortic distensibility, ascending aorta distensibility; AAo max area, ascending aorta maximum area; AAo min area, ascending aorta minimum area; DAo aortic distensibility, descending aorta distensibility; DAo max area, descending aorta maximum area; DAo min area, descending aorta minimum area; LAEF, left atrium ejection fraction; LASV, left atrium stroke volume; LAV max, left atrium maximum volume; LAV min, left atrium minimum volume; LAVA, local analysis of [co]variant association; LVM, left ventricular myocardial mass; RAEF, right atrium ejection fraction; RASV, right

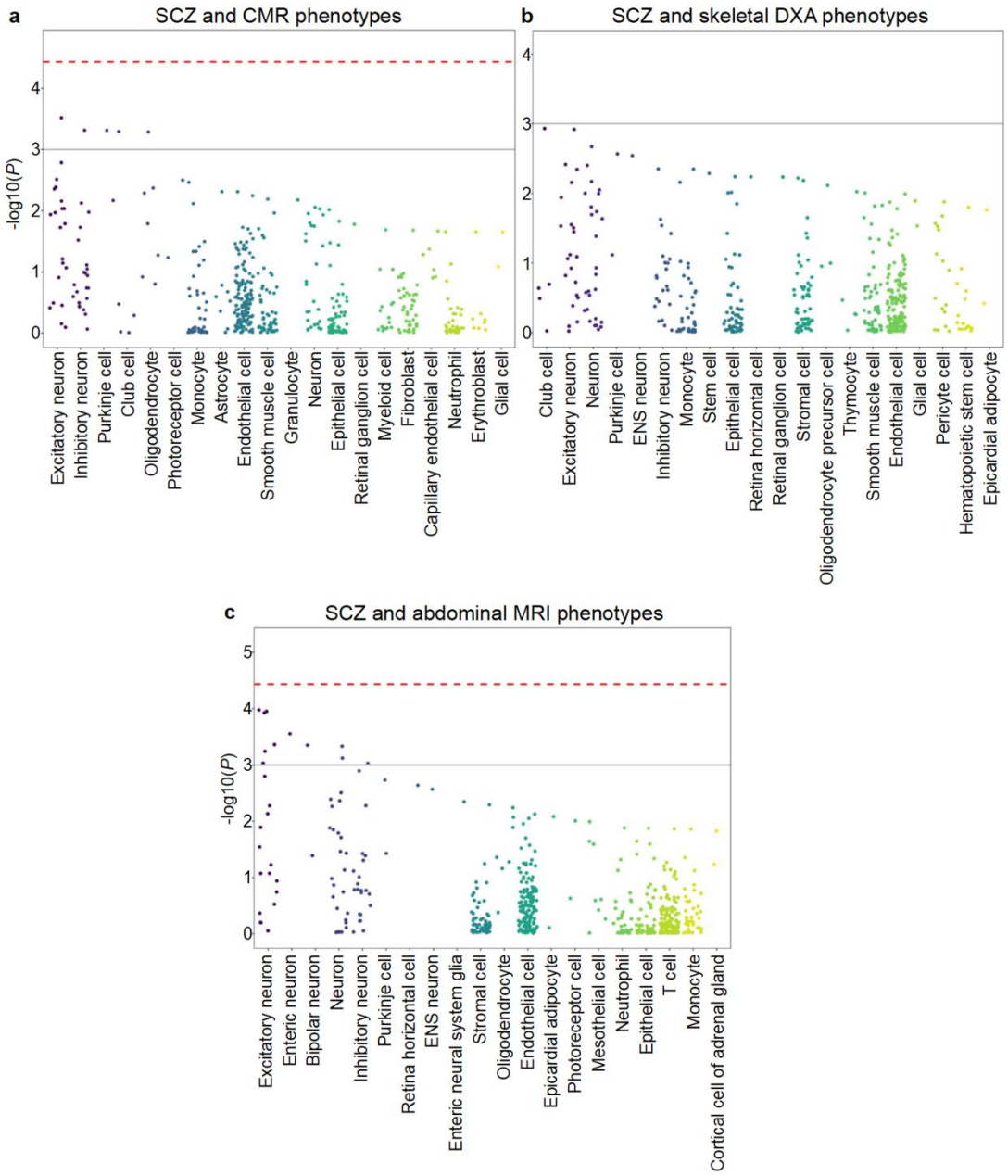
atrium stroke volume; RAV max, right atrium maximum volume; RAV min, right atrium minimum volume; RVESV, right ventricular end-systolic volume; SCZ, schizophrenia; WT global, global myocardial-wall thickness at end-diastole.



Supplementary Figure 3. CADD score distribution of pleiotropic SNPs between SCZ and peripheral organ imaging phenotypes. a-c. The detailed distribution of CADD score between SCZ and three groups of peripheral organ imaging phenotypes. Abbreviations: CADD, combined annotation dependent depletion; CMR, cardiac magnetic resonance; DXA, dual energy X-ray absorptiometry; MRI, magnetic resonance imaging; SCZ, schizophrenia.



Supplementary Figure 4. The genomic locations of pleiotropic SNPs between SCZ and peripheral organ imaging phenotypes that are associated with cognitive abilities. The genomic locations of pleiotropic SNPs associated with cognitive abilities are shown, where different shapes represent distinct imaging phenotypes and different colors correspond to different cognitive abilities. Abbreviations: CMR, cardiac magnetic resonance; DXA, dual-energy X-ray absorptiometry; MRI, magnetic resonance imaging; RT, reaction time; SCZ, Schizophrenia; TMT-B, trail making test B; VNR, verbal–numerical reasoning.



Supplementary Figure 5. Cell type enrichment analyses based on pleiotropic SNPs. The top 20 enriched cell types identified based on genes shared by SCZ and CMR phenotypes (a) ,skeletal DXA phenotypes (b) and abdominal MRI phenotypes (c), with the red dashed line marking the Bonferroni-corrected significance threshold across 1,355 tissue-cell types, and the gray solid line marking the nominal significance level ($P = 1\times10^{-3}$). Abbreviations: CMR, cardiac magnetic resonance;

DXA, dual-energy X-ray absorptiometry; MRI, magnetic resonance imaging; SCZ, Schizophrenia.