

| Hibar et al. Volume | UK Biobank IDP | r_g | Standard error | p-value |
|---------------------|-------------------------------|--------|----------------|----------|
| Caudate | T1_FIRST.Caudate.Left | 0.9007 | 0.111 | 4.84E-16 |
| | T1_FIRST.Caudate.Right | 0.971 | 0.1141 | 1.73E-17 |
| | T1_FIRST.Caudate.L_plus_R | 0.9368 | 0.1083 | 5.14E-18 |
| | Freesurfer.Caudate.Left | 0.8973 | 0.1162 | 1.17E-14 |
| | Freesurfer.Caudate.Right | 0.9169 | 0.1183 | 9.20E-15 |
| Putamen | T1_FIRST.Putamen.Left | 0.9981 | 0.1549 | 1.18E-10 |
| | T1_FIRST.Putamen.Right | 0.9275 | 0.126 | 1.82E-13 |
| | T1_FIRST.Putamen.L_plus_R | 0.9699 | 0.1274 | 2.66E-14 |
| | Freesurfer.Putamen.Left | 0.9896 | 0.1376 | 6.44E-13 |
| | Freesurfer.Putamen.Right | 0.9425 | 0.1352 | 3.15E-12 |
| Accumbens | T1_FIRST.Accumbens.Left | 1.1475 | 0.3899 | 3.25E-03 |
| | T1_FIRST.Accumbens.Right | 0.9778 | 0.3445 | 4.54E-03 |
| | T1_FIRST.Accumbens.L_plus_R | 1.0816 | 0.3382 | 1.38E-03 |
| | Freesurfer.Accumbens.Left | 1.1835 | 0.2999 | 7.95E-05 |
| | Freesurfer.Accumbens.Right | 1.1172 | 0.276 | 5.17E-05 |
| Pallidum | T1_FIRST.Pallidum.Left | 0.9259 | 0.2039 | 5.61E-06 |
| | T1_FIRST.Pallidum.Right | 0.8372 | 0.1707 | 9.39E-07 |
| | T1_FIRST.Pallidum.L_plus_R | 0.8872 | 0.1724 | 2.65E-07 |
| | Freesurfer.Pallidum.Left | 0.7965 | 0.162 | 8.74E-07 |
| | Freesurfer.Pallidum.Right | 0.7036 | 0.1632 | 1.61E-05 |
| Hippocampus | T1_FIRST.Hippocampus.Left | 0.6951 | 0.2015 | 5.60E-04 |
| | T1_FIRST.Hippocampus.Right | 0.6945 | 0.2463 | 4.81E-03 |
| | T1_FIRST.Hippocampus.L_plus_R | 0.6998 | 0.2004 | 4.80E-04 |
| | Freesurfer.Hippocampus.Left | 0.7325 | 0.1659 | 1.01E-05 |
| | Freesurfer.Hippocampus.Right | 0.7329 | 0.1667 | 1.11E-05 |
| Thalamus | T1_FIRST.Thalamus.Left | 0.6903 | 0.1916 | 0.0003 |
| | T1_FIRST.Thalamus.Right | 0.6688 | 0.2054 | 0.0011 |
| | T1_FIRST.Thalamus.L_plus_R | 0.6827 | 0.1929 | 0.0004 |
| | Freesurfer.Thalamus.Left | 0.8172 | 0.2663 | 0.0022 |
| | Freesurfer.Thalamus.Right | 0.7992 | 0.2323 | 0.0006 |

Supplementary Table 3 : Comparison of genetic architectures. LDSC regression was used to estimate the correlation between the heritable components that we inferred for the volumes of subcortical structures with those inferred by a previous study (Hibar et al. 2015). The first column lists the structures for which Hibar et al. provide summary statistics for tests of association with aggregate measurements of volume. The second column lists comparable IDPs from our study. Amygdala is absent from the table as LDSC regression was unable to compute a genetic correlation for this structure. The last three columns list the corresponding estimates for genetic correlations (r_g), the standard errors of those estimates and p-values for a test of non-zero correlation. For example, the second row compares the heritable component of aggregate caudate volume inferred by Hibar et al., with the heritable component of caudate volume in the right hemisphere as inferred by our study using FIRST segmentation. The genetic correlation for these two phenotypes is 0.971 with SE 0.1141. In all cases, the 95% confidence intervals cover 1. Consequently, there is no evidence of any difference in genetic architecture inferred by the two studies.