**Dissecting whole-brain conduction delays through MRI microstructural measures**

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**Supplementary material**
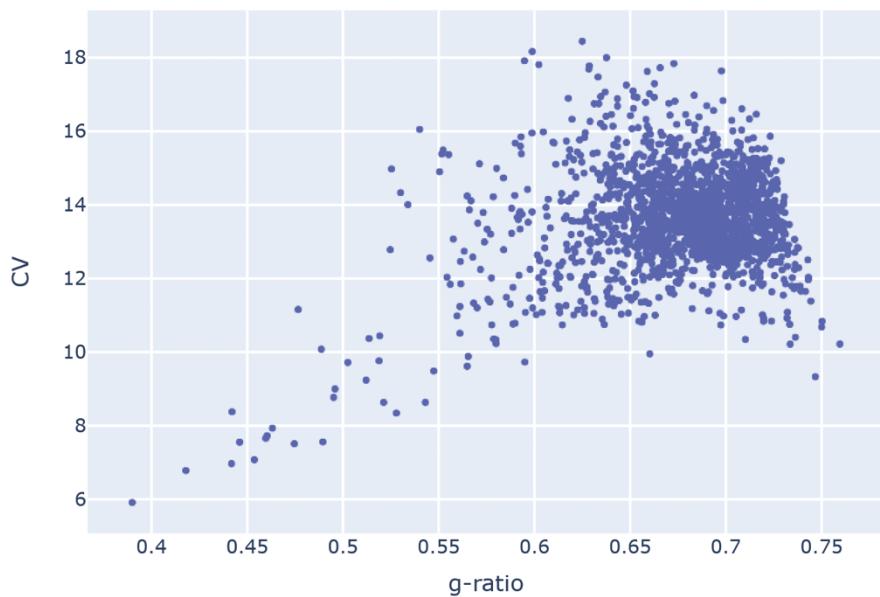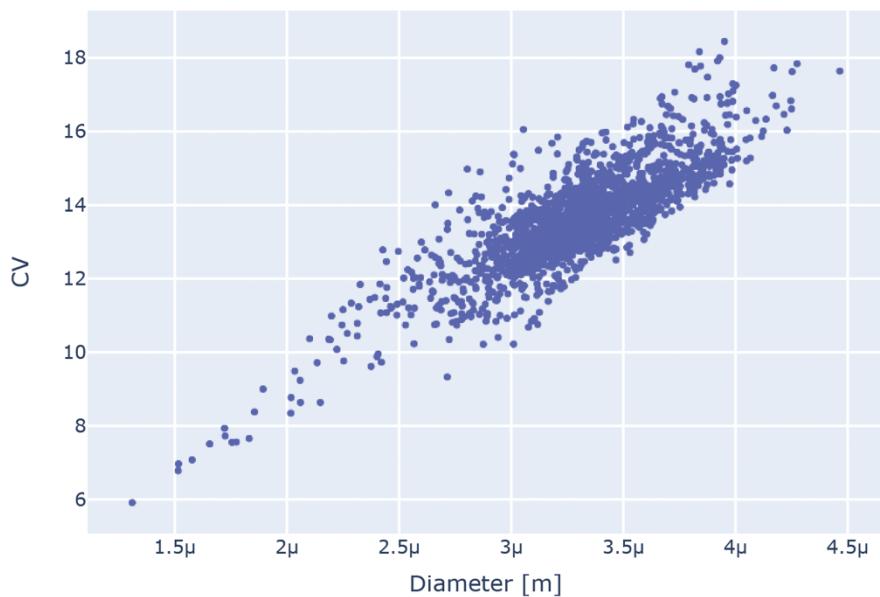
**Figure S1** Relationships between the conduction velocity and its main determinants: the axonal diameter (top) and the g-ratio (bottom). The diameter-CV relationship has an evident linear trend, while the g-ratio-CV one shares some similarities with the g-ratio-diameter trend (Figure 2).
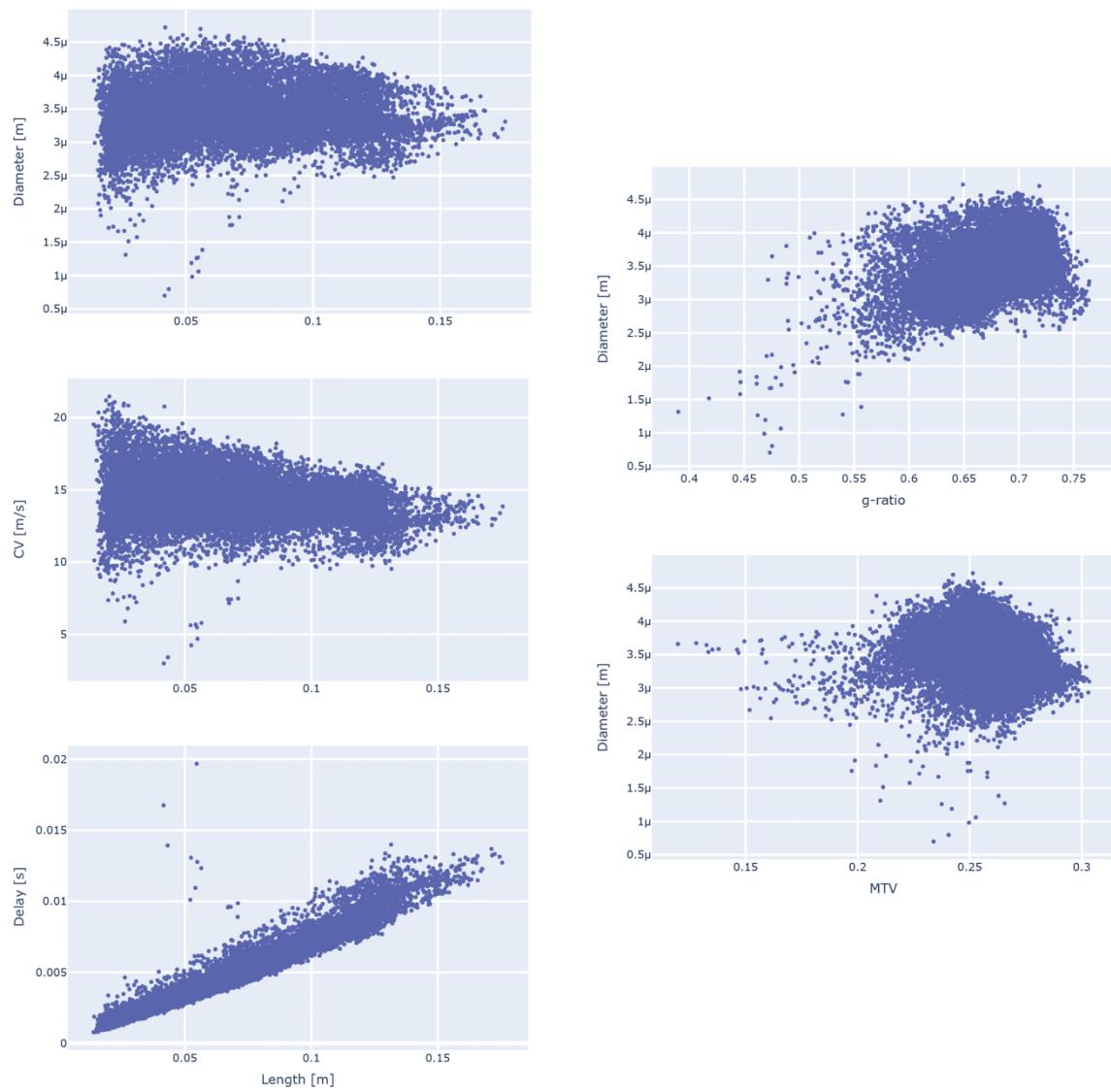
**Figure S2** Relationships between microstructural measures using the Lausanne atlas: on the left distributions of the axonal diameter (top), conduction velocity (middle) and delay (bottom) as a function of the connection length; on the right, axonal diameter distributions as a function of the g-ratio (top) and MTV (bottom Each point in the scatterplots represent a connection in the group network.
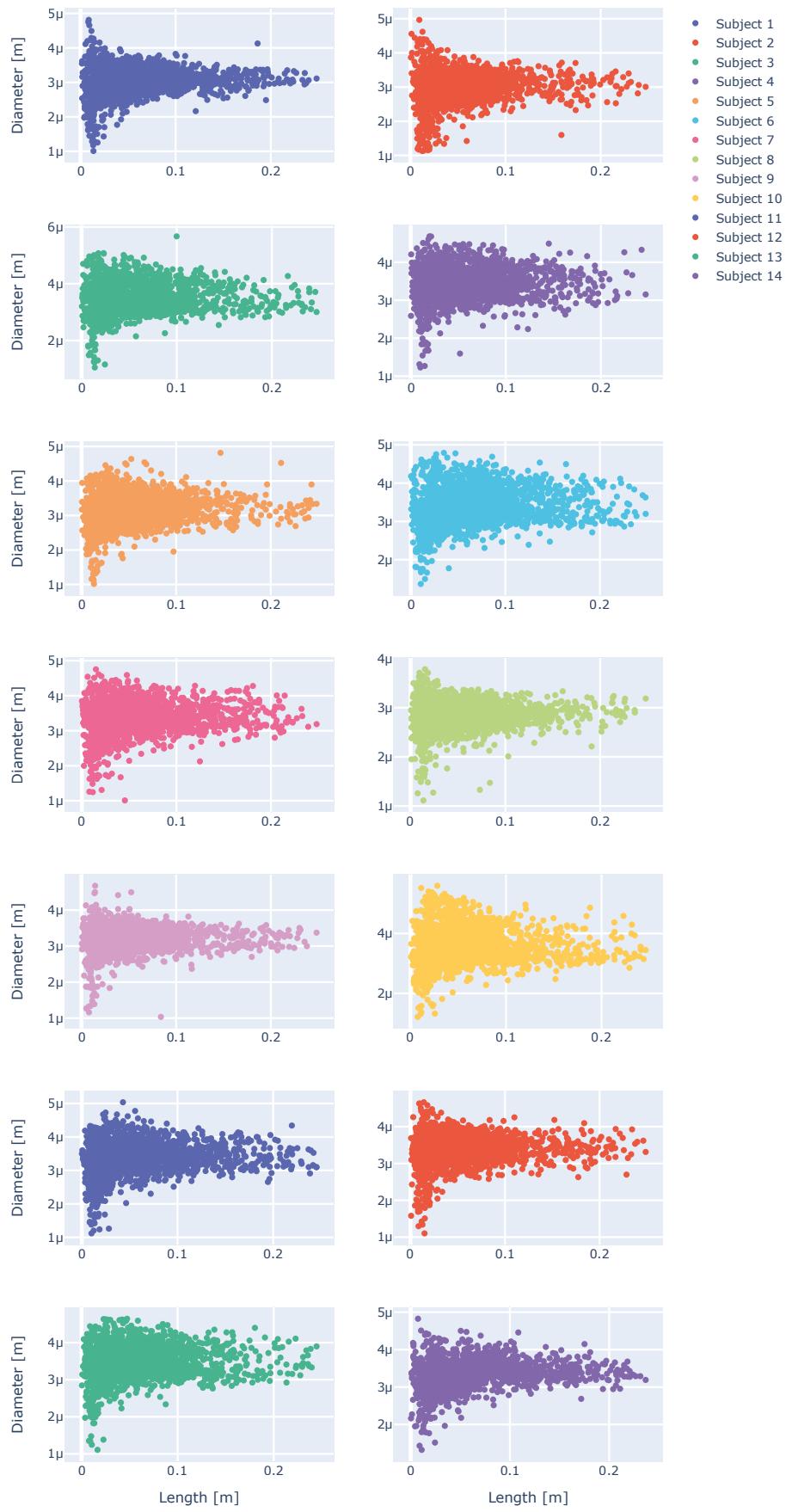
**Figure S3** Single-subject distribution of the axonal diameter distribution as a function of length.
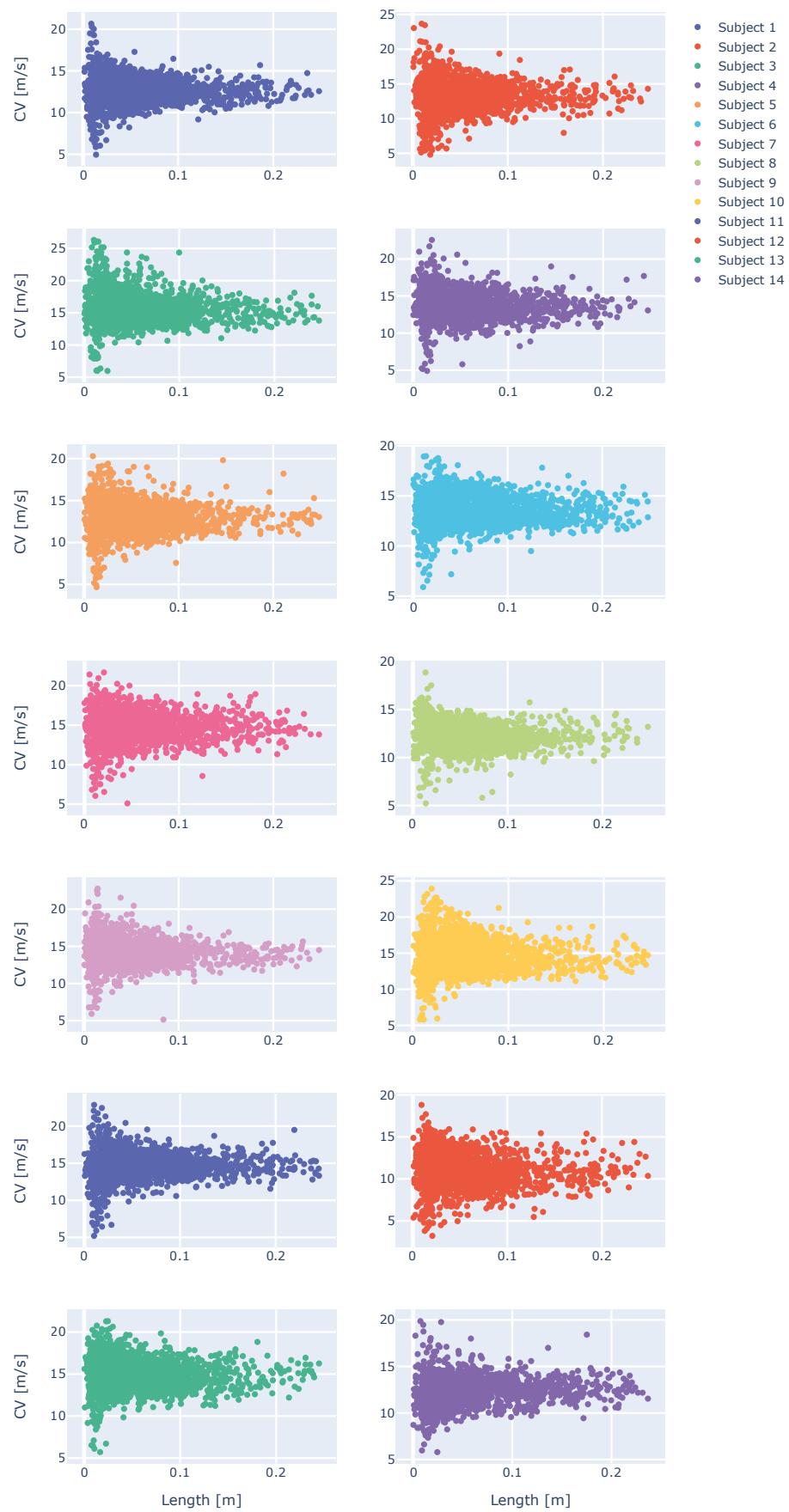
**Figure S4** Single-subject distribution of the conduction velocity distribution as a function of length.
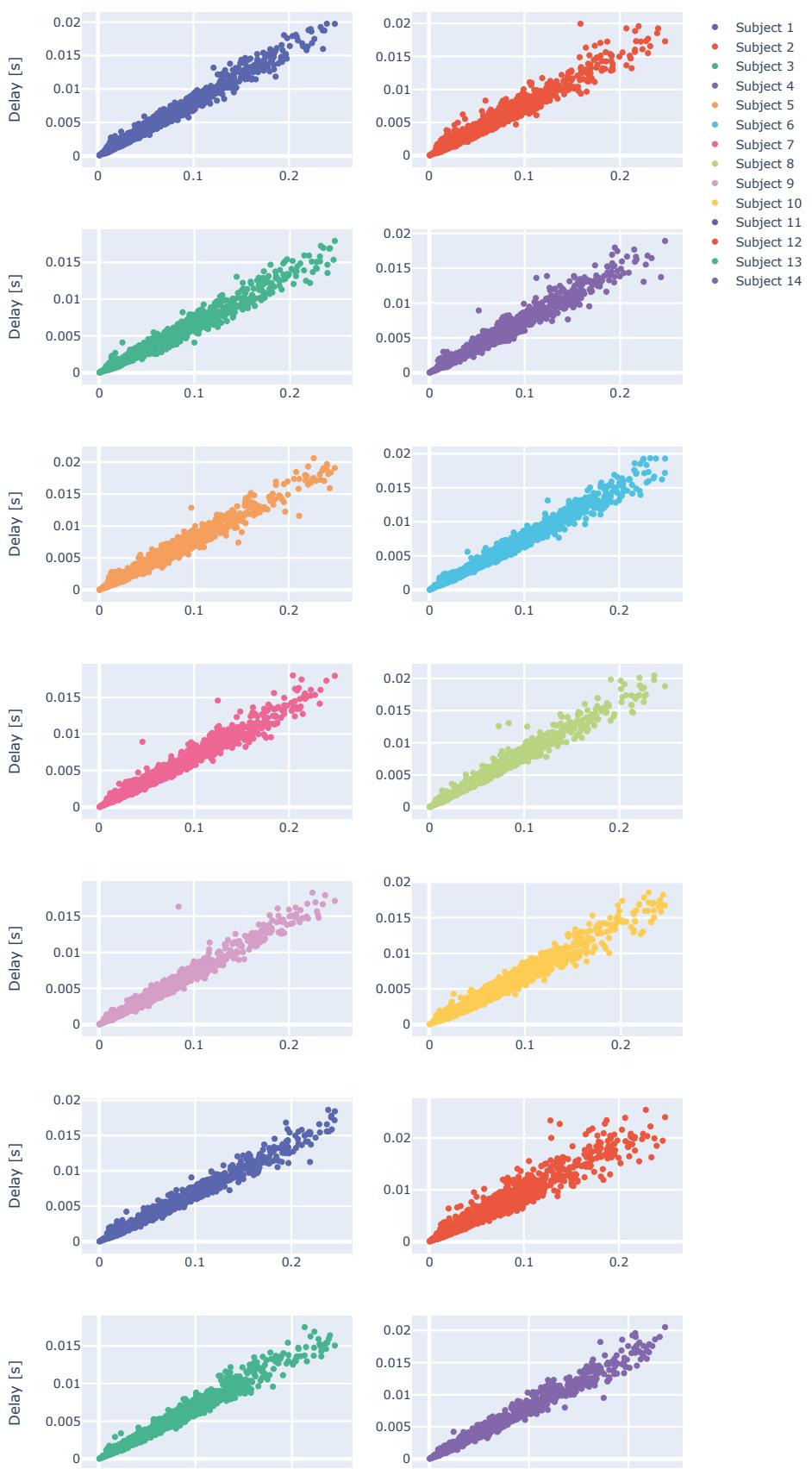
**Figure S5** Single-subject distribution of the conduction delay distribution as a function of length.
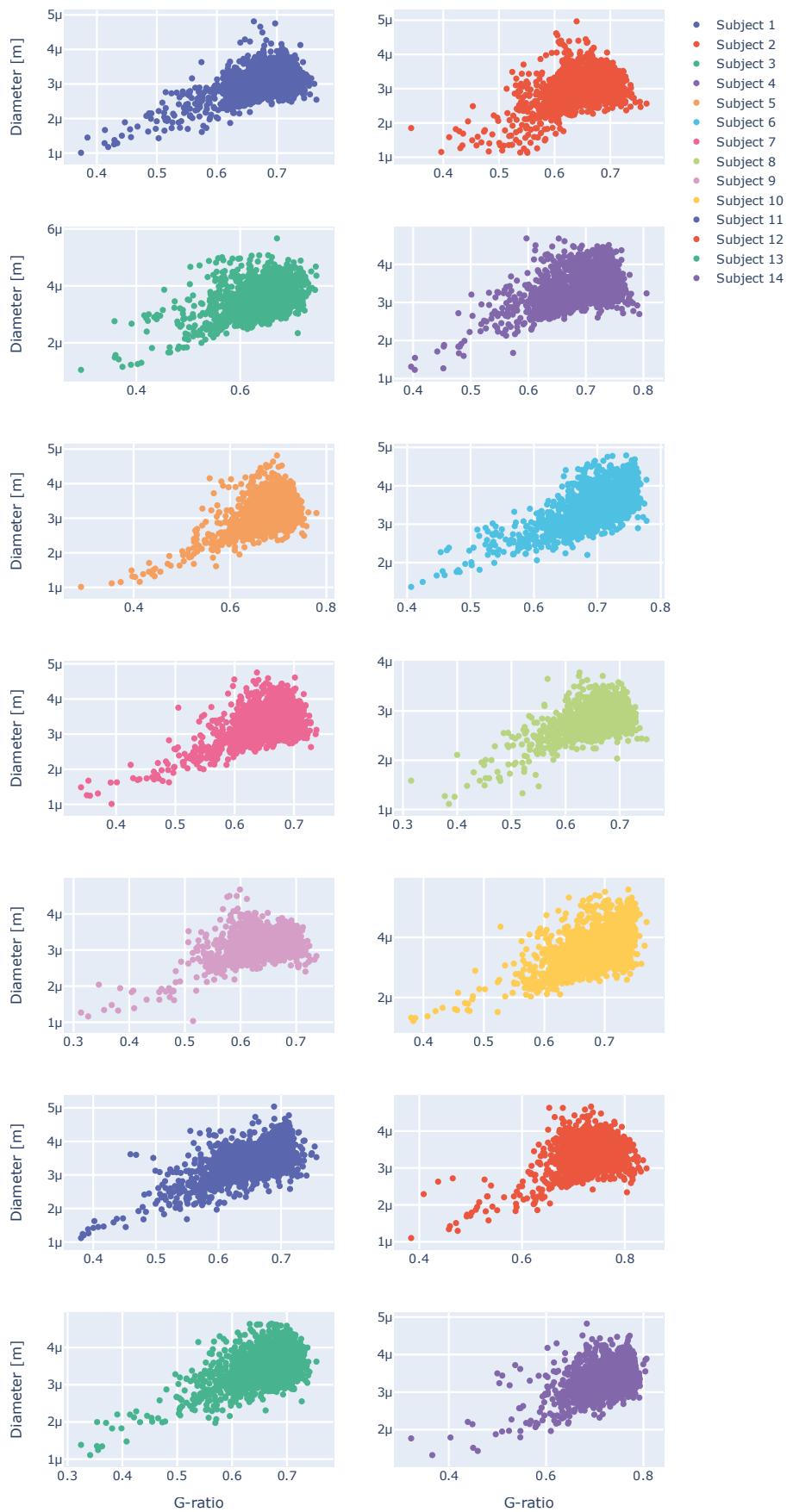
**Figure S6** Single-subject distribution of the axonal diameter distribution as a function of the g-ratio.
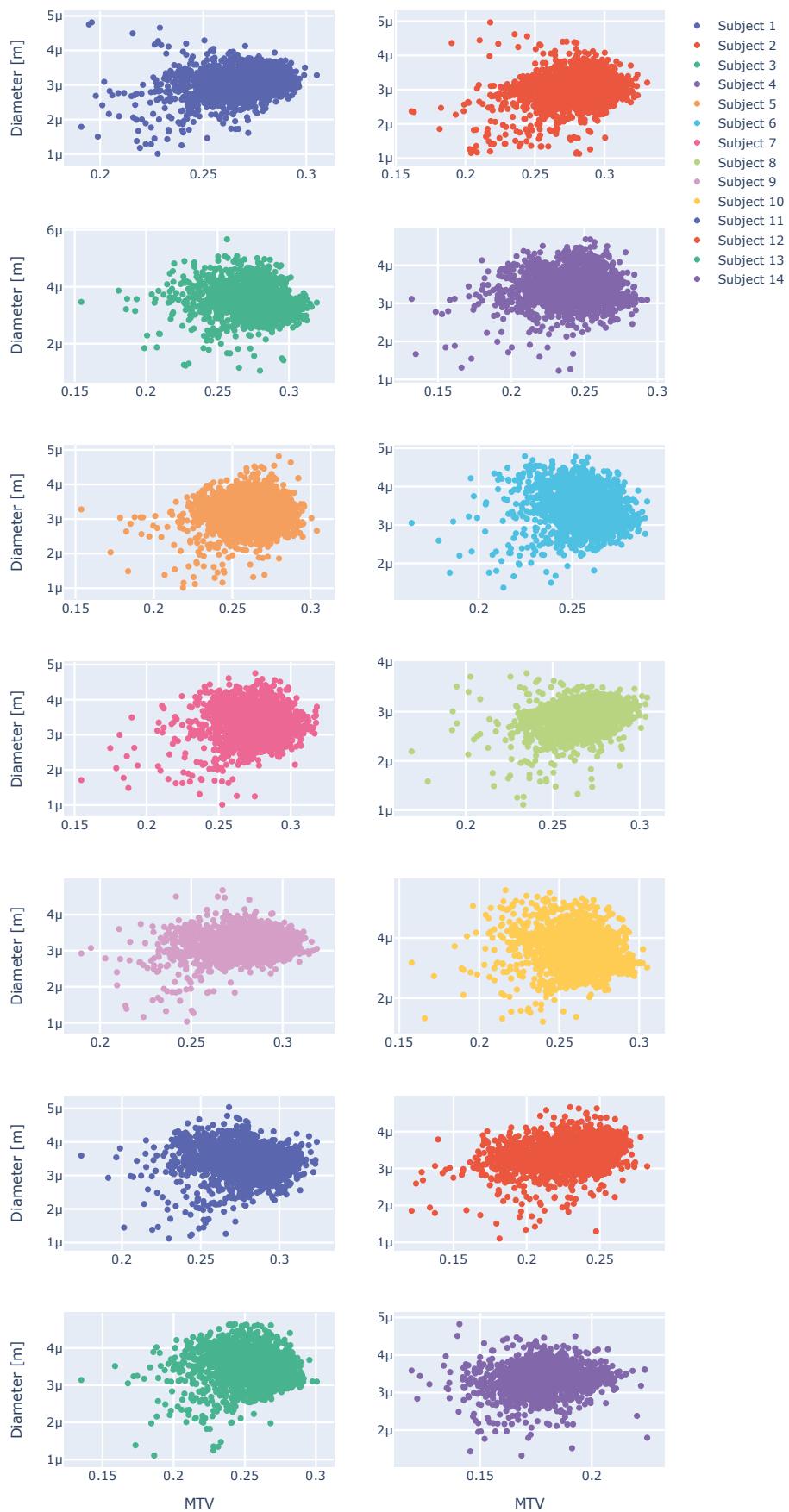
**Figure S7** Single-subject distribution of the axonal diameter distribution as a function of MTV.

**Table S1** List of FreeSurfer ROIs from the Desikan-Killiany atlas in the same order as in fig. 3.

| Cortical/Subcortical | Hemisphere | FreeSurfer label |
|---|---|---|
| Cortical | Left | bankssts |
| Cortical | Left | caudalanteriorcingulate |
| Cortical | Left | caudalmiddlefrontal |
| Cortical | Left | cuneus |
| Cortical | Left | entorhinal |
| Cortical | Left | fusiform |
| Cortical | Left | inferiorparietal |
| Cortical | Left | inferiortemporal |
| Cortical | Left | isthmuscingulate |
| Cortical | Left | lateraloccipital |
| Cortical | Left | lateralorbitofrontal |
| Cortical | Left | lingual |
| Cortical | Left | medialorbitofrontal |
| Cortical | Left | middletemporal |
| Cortical | Left | parahippocampal |
| Cortical | Left | paracentral |
| Cortical | Left | parsopercularis |
| Cortical | Left | parsorbitalis |
| Cortical | Left | parstriangularis |
| Cortical | Left | pericalcarine |
| Cortical | Left | postcentral |
| Cortical | Left | posteriorcingulate |
| Cortical | Left | precentral |
| Cortical | Left | precuneus |
| Cortical | Left | rostralanteriorcingulate |
| Cortical | Left | rostralmiddlefrontal |
| Cortical | Left | superiorfrontal |
| Cortical | Left | superiorparietal |
| Cortical | Left | superiortemporal |
| Cortical | Left | supramarginal |
| Cortical | Left | frontalpole |
| Cortical | Left | temporalpole |
| Cortical | Left | transversetemporal |
| Cortical | Left | insula |
| Subcortical | Left | Thalamus-Proper |
| Subcortical | Left | Caudate |
| Subcortical | Left | Putamen |
| Subcortical | Left | Pallidum |
| Subcortical | Left | Hippocampus |
| Subcortical | Left | Amygdala |
| Subcortical | Left | Accumbens-area |
| Subcortical | Right | Thalamus-Proper |
| Subcortical | Right | Caudate |

| | | |
|---|---|---|
| Subcortical | Right | Putamen |
| Subcortical | Right | Pallidum |
| Subcortical | Right | Hippocampus |
| Subcortical | Right | Amygdala |
| Subcortical | Right | Accumbens-area |
| Cortical | Right | bankssts |
| Cortical | Right | caudalanteriorcingulate |
| Cortical | Right | caudalmiddlefrontal |
| Cortical | Right | cuneus |
| Cortical | Right | entoRightinal |
| Cortical | Right | fusiform |
| Cortical | Right | inferiorparietal |
| Cortical | Right | inferiortemporal |
| Cortical | Right | isthmuscingulate |
| Cortical | Right | lateraloccipital |
| Cortical | Right | lateralorbitofrontal |
| Cortical | Right | lingual |
| Cortical | Right | medialorbitofrontal |
| Cortical | Right | middletemporal |
| Cortical | Right | parahippocampal |
| Cortical | Right | paracentral |
| Cortical | Right | parsopercularis |
| Cortical | Right | parsorbitalis |
| Cortical | Right | parstriangularis |
| Cortical | Right | pericalcarine |
| Cortical | Right | postcentral |
| Cortical | Right | posteriorcingulate |
| Cortical | Right | precentral |
| Cortical | Right | precuneus |
| Cortical | Right | rostralanteriorcingulate |
| Cortical | Right | rostralmiddlefrontal |
| Cortical | Right | superiorfrontal |
| Cortical | Right | superiorparietal |
| Cortical | Right | superiortemporal |
| Cortical | Right | supramarginal |
| Cortical | Right | frontalpole |
| Cortical | Right | temporalpole |
| Cortical | Right | transversetemporal |
| Cortical | Right | insula |