

**Supplemental Table 1: Anatomic Labels for the 90 AAL Template Nodal Structures Used in the Nodal Connectome Analysis**

| Node                                             | Abbreviation | Node                                        | Abbreviation | Node                                         | Abbreviation |
|--------------------------------------------------|--------------|---------------------------------------------|--------------|----------------------------------------------|--------------|
| Amygdala, Left                                   | AMYG.L       | Superior Frontal Gyrus, Medial, Right       | SFGmed.R     | Superior Parietal Gyrus, Left                | SPG.L        |
| Amygdala, Right                                  | AMYG.R       | Superior Frontal Gyrus, Orbital Part, Left  | ORBsup.L     | Superior Parietal Gyrus, Right               | SPG.R        |
| Angular Gyrus, Left                              | ANG.L        | Superior Frontal Gyrus, Orbital Part, Right | ORBsup.R     | Postcentral Gyrus, Left                      | PoCG.L       |
| Angular Gyrus, Right                             | ANG.R        | Superior Frontal Gyrus, Dorsolateral, Right | SFGdor.R     | Postcentral Gyrus, Right                     | PoCG.R       |
| Calcarine Fissure, Left                          | CAL.L        | Fusiform Gyrus, Left                        | FFG.L        | Precentral Gyrus, Left                       | PreCG.L      |
| Calcarine Fissure, Right                         | CAL.R        | Fusiform Gyrus, Right                       | FFG.R        | Precentral Gyrus, Right                      | PreCG.R      |
| Caudate Nucleus, Left                            | CAU.L        | Heschl Gyrus, Left                          | HES.L        | Precuneus, Left                              | PCUN.L       |
| Caudate Nucleus, Right                           | CAU.R        | Heschl Gyrus, Right                         | HES.R        | Precuneus, Right                             | PCUN.R       |
| Anterior Cingulate Gyrus, Left                   | ACG.L        | Hippocampus, Left                           | HIP.L        | Putamen, Left                                | PUT.L        |
| Anterior Cingulate Gyrus, Right                  | ACG.R        | Hippocampus, Right                          | HIP.R        | Putamen, Right                               | PUT.R        |
| Middle Cingulate Gyrus, Left                     | MCG.L        | Insula, Left                                | INS.L        | Gyrus Rectus, Left                           | REC.L        |
| Median Cingulate Gyrus, Right                    | MCG.R        | Insula, Right                               | INS.R        | Gyrus, Rectus, Right                         | REC.R        |
| Posterior Cingulate Gyrus, Left                  | PCG.L        | Lingual Gyrus, Left                         | LING.L       | Rolandic Operculum, Left                     | ROL.L        |
| Posterior Cingulate Gyrus, Right                 | PCG.R        | Lingual Gyrus, Right                        | LING.R       | Rolandic Operculum, Right                    | ROL.R        |
| Cuneus, Left                                     | CUN.L        | Inferior Occipital Gyrus, Left              | IOG.L        | Supplementary Motor Area, Left               | SMA.L        |
| Cuneus, Right                                    | CUN.R        | Inferior Occipital Gyrus, Right             | IOG.R        | Supplementary Motor Area, Right              | SMA.R        |
| Inferior Frontal Gyrus, Opercular Part, Left     | IFGoperc.L   | Middle Occipital Gyrus, Left                | MOG.L        | SupraMarginal Gyrus, Left                    | SMG.L        |
| Inferior Frontal Gyrus, Opercular Part, Right    | IFGoperc.R   | Middle Occipital Gyrus, Right               | MOG.R        | SupraMarginal Gyrus, Right                   | SMG.R        |
| Inferior Frontal Gyrus, Orbital Part, Left       | ORBinf.L     | Superior Occipital Gyrus, Left              | SOG.L        | Inferior Temporal Gyrus, Left                | ITG.L        |
| Inferior Frontal Gyrus, Orbital Part, Right      | ORBinf.R     | Superior Occipital Gyrus, Right             | SOG.R        | Inferior Temporal Gyrus, Right               | ITG.R        |
| Inferior Frontal Gyrus, Pars Triangularis, Left  | IFGtriang.L  | Olfactory Cortex, Left                      | OLF.L        | Middle Temporal Gyrus, Left                  | MTG.L        |
| Inferior Frontal Gyrus, Pars Triangularis, Right | IFGtriang.R  | Olfactory Cortex, Right                     | OLF.R        | Middle Temporal Gyrus, Right                 | MTG.R        |
| Superior Frontal Gyrus, Medial Orbital, Left     | ORBsupmed.L  | Pallidum, Left                              | PAL.L        | Temporal Pole: Middle Temporal Gyrus, Left   | TPOmid.L     |
| Superior Frontal Gyrus, Medial Orbital, Right    | ORBsupmed.R  | Pallidum, Right                             | PAL.R        | Temporal Pole: Middle Temporal Gyrus, Right  | TPOmid.R     |
| Middle Frontal Gyrus, Left                       | MFG.L        | Paracentral Lobule, Left                    | PCL.L        | Temporal Pole: Superior Temporal Gyrus, Left | TPOsup.L     |

|                                            |          |                              |       |                                               |          |
|--------------------------------------------|----------|------------------------------|-------|-----------------------------------------------|----------|
| Middle Frontal Gyrus, Right                | MFG.R    | Paracentral Lobule, Right    | PCL.R | Temporal Pole: Superior Temporal Gyrus, Right | TPOsup.R |
| Middle Frontal Gyrus, Orbital Part, Left   | ORBmid.L | ParaHippocampal Gyrus, Left  | PHG.L | Superior Temporal Gyrus, Left                 | STG.L    |
| Middle Frontal Gyrus, Orbital Part, Right  | ORBmid.R | ParaHippocampal Gyrus, Right | PHG.R | Superior Temporal Gyrus, Right                | STG.R    |
| Superior Frontal Gyrus, Dorsolateral, Left | SFGdor.L | Inferior Parietal, Left      | IPL.L | Thalamus, Left                                | THA.L    |
| Superior Frontal Gyrus, Medial, Left       | SFGmed.L | Inferior Parietal, Right     | IPL.R | Thalamus, Right                               | THA.R    |

Supplemental Table 2(A). Correlation between Clinical Risk Factors and Seed-Based Tractography Measurements: Innate Factors and Cardiac Lesions

|                          |                                        |        | Fractional Anisotropy |           |           | Radial Diffusivity |          |           | Axial Diffusivity |          |           |
|--------------------------|----------------------------------------|--------|-----------------------|-----------|-----------|--------------------|----------|-----------|-------------------|----------|-----------|
| Independent              | Dependent                              |        |                       |           |           |                    |          |           |                   |          |           |
| Clinical factors         | Tract                                  | N used | FDR p-value           | estimate  | direction | FDR p-value        | estimate | direction | FDR p-value       | estimate | direction |
| Birth weight             | Corpus Callosum Genu                   | 67     | 0.8602                | -7.60E-06 | -         | <b>0.041</b>       | 5.55E-05 | +         | <b>0.0557</b>     | 5.25E-05 | +         |
|                          | Corpus Callosum Body                   | 67     | 0.3729                | -1.30E-05 | -         | <b>0.0066</b>      | 9.28E-05 | +         | <b>0.0182</b>     | 8.73E-05 | +         |
|                          | Corpus Callosum Splenium               | 67     | 0.48                  | -1.70E-05 | -         | <b>0.0176</b>      | 9.63E-05 | +         | 0.0908            | 7.52E-05 | +         |
|                          | Cortical Spinal Tract Left             | 63     | 0.8926                | -1.50E-06 | -         | 0.1017             | 7.77E-05 | +         | <b>0.0557</b>     | 0.000105 | +         |
|                          | Cortical Spinal Tract Right            | 64     | 0.8926                | -2.20E-06 | -         | 0.1008             | 8.63E-05 | +         | <b>0.0557</b>     | 0.000112 | +         |
|                          | Fronto-occipital Fasciculus Left       | 59     | 0.8926                | -2.70E-06 | -         | 0.191              | 3.62E-05 | +         | 0.2057            | 3.81E-05 | +         |
|                          | Fronto-occipital Fasciculus Right      | 57     | 0.8926                | 1.01E-06  | +         | 0.9824             | 6.29E-07 | +         | 0.8984            | 3.61E-06 | +         |
|                          | Inferior Longitudinal Fasciculus Left  | 61     | 0.8926                | 1.73E-06  | +         | 0.2988             | 3.51E-05 | +         | 0.2073            | 4.70E-05 | +         |
|                          | Inferior Longitudinal Fasciculus Right | 60     | 0.3729                | -1.20E-05 | -         | 0.1008             | 6.62E-05 | +         | 0.2514            | 4.51E-05 | +         |
|                          | Superior Longitudinal Fasciculus Left  | 65     | 0.8926                | -4.50E-06 | -         | <b>0.0187</b>      | 0.000101 | +         | <b>0.0182</b>     | 0.000119 | +         |
|                          | Superior Longitudinal Fasciculus Right | 63     | 0.8926                | -3.60E-06 | -         | 0.1198             | 5.06E-05 | +         | 0.0799            | 5.45E-05 | +         |
| Birth weight, percentile | Corpus Callosum Genu                   | 67     | 0.4437                | -0.00017  | -         | <b>0.0055</b>      | 0.001263 | +         | <b>0.0072</b>     | 0.001262 | +         |
|                          | Corpus Callosum Body                   | 67     | 0.4437                | -0.00022  | -         | <b>0.0022</b>      | 0.001723 | +         | <b>0.0066</b>     | 0.001722 | +         |
|                          | Corpus Callosum Splenium               | 67     | 0.4437                | -0.00026  | -         | <b>0.0055</b>      | 0.001769 | +         | <b>0.0327</b>     | 0.001571 | +         |
|                          | Cortical Spinal Tract Left             | 63     | 0.9589                | 8.88E-06  | +         | 0.2109             | 0.000916 | +         | 0.1039            | 0.001349 | +         |
|                          | Cortical Spinal Tract Right            | 64     | 0.8817                | -6.00E-05 | -         | <b>0.02</b>        | 0.001845 | +         | <b>0.0114</b>     | 0.002367 | +         |
|                          | Fronto-occipital Fasciculus Left       | 59     | 0.6474                | -9.00E-05 | -         | <b>0.0426</b>      | 0.000937 | +         | <b>0.0327</b>     | 0.001016 | +         |
|                          | Fronto-occipital Fasciculus Right      | 57     | 0.8817                | -4.60E-05 | -         | 0.244              | 0.000566 | +         | 0.1528            | 0.000688 | +         |
|                          | Inferior Longitudinal Fasciculus Left  | 61     | 0.9224                | -2.60E-05 | -         | 0.1223             | 0.000874 | +         | 0.0886            | 0.001054 | +         |
|                          | Inferior Longitudinal Fasciculus Right | 60     | 0.4437                | -0.0002   | -         | <b>0.0426</b>      | 0.001243 | +         | 0.1097            | 0.001028 | +         |
|                          | Superior Longitudinal Fasciculus Left  | 65     | 0.4437                | -0.00013  | -         | <b>0.02</b>        | 0.001667 | +         | <b>0.0157</b>     | 0.001869 | +         |

|                                |                                        |    |        |           |   |               |          |   |               |          |   |
|--------------------------------|----------------------------------------|----|--------|-----------|---|---------------|----------|---|---------------|----------|---|
|                                | Superior Longitudinal Fasciculus Right | 63 | 0.4437 | -0.00015  | - | <b>0.0297</b> | 0.001149 | + | <b>0.0207</b> | 0.001134 | + |
| Head circumference             | Corpus Callosum Genu                   | 66 | 0.7138 | -0.0008   | - | 0.6204        | 0.004624 | + | 0.5025        | 0.004974 | + |
|                                | Corpus Callosum Body                   | 66 | 0.587  | -0.00135  | - | 0.6204        | 0.006139 | + | 0.5025        | 0.005072 | + |
|                                | Corpus Callosum Splenium               | 66 | 0.7138 | -0.00062  | - | 0.6204        | 0.005321 | + | 0.5025        | 0.006899 | + |
|                                | Cortical Spinal Tract Left             | 62 | 0.587  | -0.00215  | - | 0.6204        | 0.004631 | + | 0.8263        | 0.001507 | + |
|                                | Cortical Spinal Tract Right            | 64 | 0.7138 | -0.00127  | - | 0.6204        | 0.004117 | + | 0.6982        | 0.003366 | + |
|                                | Fronto-occipital Fasciculus Left       | 59 | 0.7138 | 0.000545  | + | 0.6204        | 0.003382 | + | 0.5025        | 0.006741 | + |
|                                | Fronto-occipital Fasciculus Right      | 57 | 0.7138 | 0.000965  | + | 0.9145        | -0.00053 | - | 0.6539        | 0.003041 | + |
|                                | Inferior Longitudinal Fasciculus Left  | 61 | 0.7138 | 0.001121  | + | 0.7084        | 0.002575 | + | 0.5025        | 0.007747 | + |
|                                | Inferior Longitudinal Fasciculus Right | 60 | 0.7138 | -0.00044  | - | 0.6204        | 0.004291 | + | 0.5833        | 0.00548  | + |
|                                | Superior Longitudinal Fasciculus Left  | 64 | 0.587  | -0.00149  | - | 0.6204        | 0.008259 | + | 0.5025        | 0.00755  | + |
|                                | Superior Longitudinal Fasciculus Right | 62 | 0.7138 | -0.00064  | - | 0.6204        | 0.003002 | + | 0.5833        | 0.003    | + |
| Head circumference, percentile | Corpus Callosum Genu                   | 66 | 0.8518 | -6.30E-05 | - | <b>0.0147</b> | 0.001123 | + | <b>0.0017</b> | 0.00137  | + |
|                                | Corpus Callosum Body                   | 66 | 0.8518 | -0.00012  | - | <b>0.0147</b> | 0.001366 | + | <b>0.0077</b> | 0.001499 | + |
|                                | Corpus Callosum Splenium               | 66 | 0.8518 | -6.70E-05 | - | <b>0.0198</b> | 0.001459 | + | <b>0.0132</b> | 0.001817 | + |
|                                | Cortical Spinal Tract Left             | 62 | 0.9212 | 1.64E-05  | + | 0.2704        | 0.000832 | + | 0.123         | 0.00121  | + |
|                                | Cortical Spinal Tract Right            | 64 | 0.8518 | 6.00E-05  | + | 0.4325        | 0.000539 | + | 0.2099        | 0.000976 | + |
|                                | Fronto-occipital Fasciculus Left       | 59 | 0.8518 | -4.60E-05 | - | <b>0.0147</b> | 0.001167 | + | <b>0.0017</b> | 0.001493 | + |
|                                | Fronto-occipital Fasciculus Right      | 57 | 0.8518 | 3.48E-05  | + | 0.2866        | 0.000517 | + | 0.0573        | 0.000918 | + |
|                                | Inferior Longitudinal Fasciculus Left  | 61 | 0.8518 | 0.000117  | + | 0.1702        | 0.000829 | + | <b>0.0132</b> | 0.001463 | + |
|                                | Inferior Longitudinal Fasciculus Right | 60 | 0.8518 | -7.90E-05 | - | 0.1702        | 0.000882 | + | 0.1014        | 0.001021 | + |
|                                | Superior Longitudinal Fasciculus Left  | 64 | 0.8518 | -6.40E-05 | - | 0.0537        | 0.001368 | + | <b>0.0257</b> | 0.001606 | + |
|                                | Superior Longitudinal Fasciculus Right | 62 | 0.8518 | 4.03E-05  | + | 0.2552        | 0.000597 | + | <b>0.0478</b> | 0.000893 | + |
| Birth length                   | Corpus Callosum Genu                   | 63 | 0.7563 | -0.0005   | - | 0.5731        | 0.001694 | + | 0.5909        | 0.001399 | + |
|                                | Corpus Callosum Body                   | 63 | 0.7563 | -0.00029  | - | 0.5731        | 0.002269 | + | 0.5909        | 0.002744 | + |

|                          |                                        |    |        |           |   |               |          |   |               |          |   |
|--------------------------|----------------------------------------|----|--------|-----------|---|---------------|----------|---|---------------|----------|---|
|                          | Corpus Callosum Splenium               | 63 | 0.7563 | -0.00053  | - | 0.5731        | 0.002887 | + | 0.5909        | 0.003197 | + |
|                          | Cortical Spinal Tract Left             | 59 | 0.7563 | -0.001    | - | 0.9378        | 0.00026  | + | 0.6798        | -0.00155 | - |
|                          | Cortical Spinal Tract Right            | 61 | 0.7563 | -0.00038  | - | 0.5731        | 0.00248  | + | 0.5909        | 0.00298  | + |
|                          | Fronto-occipital Fasciculus Left       | 56 | 0.7563 | 0.000302  | + | 0.9378        | 0.000396 | + | 0.643         | 0.001308 | + |
|                          | Fronto-occipital Fasciculus Right      | 54 | 0.7563 | 0.000482  | + | 0.9378        | 0.000221 | + | 0.5909        | 0.001812 | + |
|                          | Inferior Longitudinal Fasciculus Left  | 58 | 0.7563 | 0.000248  | + | 0.5731        | 0.002413 | + | 0.5909        | 0.004154 | + |
|                          | Inferior Longitudinal Fasciculus Right | 57 | 0.9615 | 2.90E-05  | + | 0.5731        | 0.002537 | + | 0.5909        | 0.003782 | + |
|                          | Superior Longitudinal Fasciculus Left  | 61 | 0.451  | -0.00081  | - | 0.5731        | 0.004032 | + | 0.5909        | 0.003659 | + |
|                          | Superior Longitudinal Fasciculus Right | 59 | 0.451  | -0.00092  | - | 0.5731        | 0.003003 | + | 0.5909        | 0.002043 | + |
| Birth length, percentile | Corpus Callosum Genu                   | 63 | 0.7599 | -0.00013  | - | <b>0.0407</b> | 0.000844 | + | 0.0675        | 0.000775 | + |
|                          | Corpus Callosum Body                   | 63 | 0.8495 | -3.00E-05 | - | <b>0.0407</b> | 0.001073 | + | <b>0.0226</b> | 0.001424 | + |
|                          | Corpus Callosum Splenium               | 63 | 0.7599 | -0.00015  | - | <b>0.0407</b> | 0.001525 | + | <b>0.0315</b> | 0.001662 | + |
|                          | Cortical Spinal Tract Left             | 59 | 0.7599 | -0.00011  | - | 0.506         | 0.000463 | + | 0.4902        | 0.000541 | + |
|                          | Cortical Spinal Tract Right            | 61 | 0.9831 | 3.39E-06  | + | 0.0694        | 0.001176 | + | <b>0.0315</b> | 0.001757 | + |
|                          | Fronto-occipital Fasciculus Left       | 56 | 0.7599 | -5.00E-05 | - | 0.1129        | 0.000691 | + | 0.1283        | 0.000701 | + |
|                          | Fronto-occipital Fasciculus Right      | 54 | 0.7599 | 7.30E-05  | + | 0.3509        | 0.00047  | + | 0.1067        | 0.000831 | + |
|                          | Inferior Longitudinal Fasciculus Left  | 58 | 0.7599 | 6.02E-05  | + | <b>0.0407</b> | 0.001241 | + | <b>0.0187</b> | 0.001727 | + |
|                          | Inferior Longitudinal Fasciculus Right | 57 | 0.7599 | -7.80E-05 | - | <b>0.0407</b> | 0.001324 | + | <b>0.0315</b> | 0.001533 | + |
|                          | Superior Longitudinal Fasciculus Left  | 61 | 0.7599 | -8.10E-05 | - | <b>0.0418</b> | 0.001316 | + | <b>0.033</b>  | 0.001549 | + |
|                          | Superior Longitudinal Fasciculus Right | 59 | 0.4697 | -0.00021  | - | <b>0.0407</b> | 0.001104 | + | <b>0.0352</b> | 0.000935 | + |
| APGAR, 1 minute          | Corpus Callosum Genu                   | 61 | 0.1232 | 0.005087  | + | 0.0693        | -0.01546 | - | 0.3914        | -0.00679 | - |
|                          | Corpus Callosum Body                   | 61 | 0.1232 | 0.004458  | + | 0.0204        | -0.02504 | - | 0.0957        | -0.02021 | - |
|                          | Corpus Callosum Splenium               | 61 | 0.2653 | 0.005416  | + | 0.0579        | -0.02315 | - | 0.3391        | -0.01525 | - |
|                          | Cortical Spinal Tract Left             | 57 | 0.4924 | 0.002187  | + | 0.1924        | -0.01777 | - | 0.3063        | -0.01924 | - |
|                          | Cortical Spinal Tract Right            | 59 | 0.4552 | 0.002497  | + | 0.5342        | 0.008304 | + | 0.3391        | 0.016354 | + |

|                            |                                        |    |        |          |   |        |          |   |               |          |   |
|----------------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|---------------|----------|---|
|                            | Fronto-occipital Fasciculus Left       | 54 | 0.4552 | 0.001637 | + | 0.0204 | -0.02228 | - | <b>0.0231</b> | -0.02339 | - |
|                            | Fronto-occipital Fasciculus Right      | 53 | 0.1895 | 0.004042 | + | 0.0964 | -0.01481 | - | 0.3391        | -0.00811 | - |
|                            | Inferior Longitudinal Fasciculus Left  | 56 | 0.2653 | 0.003226 | + | 0.0204 | -0.02356 | - | 0.0957        | -0.02028 | - |
|                            | Inferior Longitudinal Fasciculus Right | 55 | 0.4198 | 0.002104 | + | 0.1409 | -0.01556 | - | 0.2563        | -0.01459 | - |
|                            | Superior Longitudinal Fasciculus Left  | 59 | 0.2653 | 0.002769 | + | 0.0579 | -0.02591 | - | 0.0957        | -0.02635 | - |
|                            | Superior Longitudinal Fasciculus Right | 58 | 0.1232 | 0.00463  | + | 0.0204 | -0.02101 | - | 0.0957        | -0.01504 | - |
| <b>APGAR, 5 minutes</b>    | Corpus Callosum Genu                   | 61 | 0.2904 | 0.003963 | + | 0.6875 | -0.00555 | - | 0.8742        | 0.006575 | + |
|                            | Corpus Callosum Body                   | 61 | 0.1634 | 0.004592 | + | 0.6875 | -0.01251 | - | 0.8742        | -0.00187 | - |
|                            | Corpus Callosum Splenium               | 61 | 0.1634 | 0.008438 | + | 0.6875 | -0.01086 | - | 0.8742        | 0.012254 | + |
|                            | Cortical Spinal Tract Left             | 57 | 0.5029 | 0.00249  | + | 0.7035 | 0.005859 | + | 0.8742        | 0.014558 | + |
|                            | Cortical Spinal Tract Right            | 59 | 0.4765 | 0.002874 | + | 0.6875 | 0.009563 | + | 0.8742        | 0.020581 | + |
|                            | Fronto-occipital Fasciculus Left       | 54 | 0.3866 | 0.002599 | + | 0.7035 | -0.00356 | - | 0.8742        | 0.004899 | + |
|                            | Fronto-occipital Fasciculus Right      | 53 | 0.1634 | 0.004869 | + | 0.1386 | -0.02341 | - | 0.8742        | -0.01585 | - |
|                            | Inferior Longitudinal Fasciculus Left  | 56 | 0.1634 | 0.006061 | + | 0.6875 | -0.01185 | - | 0.8742        | 0.00258  | + |
|                            | Inferior Longitudinal Fasciculus Right | 55 | 0.2904 | 0.003437 | + | 0.6875 | -0.01318 | - | 0.8742        | -0.00782 | - |
|                            | Superior Longitudinal Fasciculus Left  | 59 | 0.4765 | 0.001896 | + | 0.6875 | -0.00804 | - | 0.8742        | -0.00441 | - |
|                            | Superior Longitudinal Fasciculus Right | 58 | 0.4765 | 0.001941 | + | 0.6875 | -0.00639 | - | 0.8742        | -0.00238 | - |
| <b>22q11 Microdeletion</b> | Corpus Callosum Genu                   | 46 | 0.9096 | 0.004524 | + | 0.9906 | -0.00056 | - | 0.961         | 0.013357 | + |
|                            | Corpus Callosum Body                   | 46 | 0.9096 | 0.007271 | + | 0.7319 | -0.03722 | - | 0.961         | -0.02951 | - |
|                            | Corpus Callosum Splenium               | 46 | 0.7869 | 0.034045 | + | 0.7319 | -0.10199 | - | 0.961         | -0.04828 | - |
|                            | Cortical Spinal Tract Left             | 42 | 0.941  | 0.003405 | + | 0.7319 | -0.08227 | - | 0.961         | -0.10025 | - |
|                            | Cortical Spinal Tract Right            | 43 | 0.7869 | 0.021142 | + | 0.7319 | -0.085   | - | 0.961         | -0.05942 | - |
|                            | Fronto-occipital Fasciculus Left       | 38 | 0.7869 | 0.012393 | + | 0.7319 | -0.02936 | - | 0.961         | 0.006426 | + |
|                            | Fronto-occipital Fasciculus Right      | 36 | 0.7869 | 0.014518 | + | 0.7319 | -0.06666 | - | 0.961         | -0.05045 | - |
|                            | Inferior Longitudinal Fasciculus Left  | 40 | 0.9096 | -0.00631 | - | 0.7319 | -0.0476  | - | 0.961         | -0.07053 | - |



|                                              |                                           |    |        |          |   |        |          |   |        |          |   |
|----------------------------------------------|-------------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
| Single ventricle<br>with arch<br>obstruction | Corpus Callosum<br>Genu                   | 67 | 0.7832 | 0.010591 | + | 0.8717 | -0.00759 | - | 0.5606 | 0.015311 | + |
|                                              | Corpus Callosum<br>Body                   | 67 | 0.7832 | 0.00752  | + | 0.8717 | 0.007339 | + | 0.5313 | 0.026024 | + |
|                                              | Corpus Callosum<br>Splenium               | 67 | 0.7921 | 0.005563 | + | 0.8717 | 0.011256 | + | 0.5313 | 0.035432 | + |
|                                              | Cortical Spinal Tract<br>Left             | 63 | 0.7832 | 0.014734 | + | 0.8717 | 0.012699 | + | 0.5313 | 0.045863 | + |
|                                              | Cortical Spinal Tract<br>Right            | 64 | 0.7921 | 0.007969 | + | 0.8717 | 0.021902 | + | 0.5313 | 0.047329 | + |
|                                              | Fronto-occipital<br>Fasciculus Left       | 59 | 0.7921 | -0.0046  | - | 0.8717 | 0.02496  | + | 0.5313 | 0.023111 | + |
|                                              | Fronto-occipital<br>Fasciculus Right      | 57 | 0.7921 | -0.00369 | - | 0.8717 | 0.030712 | + | 0.5313 | 0.033573 | + |
|                                              | Inferior Longitudinal<br>Fasciculus Left  | 61 | 0.8235 | 0.002456 | + | 0.8717 | 0.008691 | + | 0.5606 | 0.02044  | + |
|                                              | Inferior Longitudinal<br>Fasciculus Right | 60 | 0.7921 | -0.00429 | - | 0.8717 | 0.040004 | + | 0.5313 | 0.041784 | + |
|                                              | Superior Longitudinal<br>Fasciculus Left  | 65 | 0.9523 | 0.0004   | + | 0.8717 | -0.02434 | - | 0.5313 | -0.03474 | - |
|                                              | Superior Longitudinal<br>Fasciculus Right | 63 | 0.7832 | 0.009445 | + | 0.8717 | 0.004782 | + | 0.5313 | 0.026708 | + |
| d-TGA                                        | Corpus Callosum<br>Genu                   | 67 | 0.7614 | -0.01362 | - | 0.9879 | 0.027239 | + | 0.9853 | 0.005252 | + |
|                                              | Corpus Callosum<br>Body                   | 67 | 0.7974 | -0.00356 | - | 0.9879 | 0.002471 | + | 0.9853 | 0.000765 | + |
|                                              | Corpus Callosum<br>Splenium               | 67 | 0.7614 | -0.00955 | - | 0.9879 | -0.02269 | - | 0.9853 | -0.05688 | - |
|                                              | Cortical Spinal Tract<br>Left             | 63 | 0.7974 | -0.00496 | - | 0.9879 | -0.00395 | - | 0.9853 | -0.01187 | - |
|                                              | Cortical Spinal Tract<br>Right            | 64 | 0.7614 | -0.00906 | - | 0.9879 | -0.02873 | - | 0.9853 | -0.05973 | - |
|                                              | Fronto-occipital<br>Fasciculus Left       | 59 | 0.7974 | -0.00233 | - | 0.9879 | -0.01098 | - | 0.9853 | -0.01847 | - |
|                                              | Fronto-occipital<br>Fasciculus Right      | 57 | 0.7974 | -0.00303 | - | 0.9879 | 0.000447 | + | 0.9853 | -0.0086  | - |
|                                              | Inferior Longitudinal<br>Fasciculus Left  | 61 | 0.8208 | -0.00173 | - | 0.9879 | -0.00849 | - | 0.9853 | -0.01577 | - |
|                                              | Inferior Longitudinal<br>Fasciculus Right | 60 | 0.7614 | -0.00602 | - | 0.9879 | -0.0155  | - | 0.9853 | -0.03638 | - |
|                                              | Superior Longitudinal<br>Fasciculus Left  | 65 | 0.7614 | -0.00706 | - | 0.9879 | 0.034258 | + | 0.9853 | 0.031794 | + |
|                                              | Superior Longitudinal<br>Fasciculus Right | 63 | 0.7614 | -0.01026 | - | 0.9879 | 0.017208 | + | 0.9853 | 0.000487 | + |
| Conotruncal<br>defects                       | Corpus Callosum<br>Genu                   | 67 | 0.9852 | -0.01244 | - | 0.8787 | 0.031486 | + | 0.854  | 0.011879 | + |
|                                              | Corpus Callosum<br>Body                   | 67 | 0.9852 | -0.00308 | - | 0.8787 | 0.019452 | + | 0.854  | 0.019977 | + |
|                                              | Corpus Callosum<br>Splenium               | 67 | 0.9852 | 0.001471 | + | 0.8787 | 0.01019  | + | 0.854  | 0.01645  | + |



|                                                          |                                        |    |        |          |   |        |          |   |        |          |   |
|----------------------------------------------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
|                                                          | Cortical Spinal Tract Left             | 63 | 0.9852 | 0.003437 | + | 0.8787 | -0.01294 | - | 0.9708 | -0.00176 | - |
|                                                          | Cortical Spinal Tract Right            | 64 | 0.9852 | 0.005717 | + | 0.8787 | -0.04913 | - | 0.7532 | -0.05548 | - |
|                                                          | Fronto-occipital Fasciculus Left       | 59 | 0.9852 | 0.002302 | + | 0.9559 | -0.00143 | - | 0.9043 | 0.006015 | + |
|                                                          | Fronto-occipital Fasciculus Right      | 57 | 0.9852 | -0.00014 | - | 0.8787 | -0.03476 | - | 0.6144 | -0.04544 | - |
|                                                          | Inferior Longitudinal Fasciculus Left  | 61 | 0.9852 | -0.00094 | - | 0.8787 | -0.00951 | - | 0.854  | -0.01706 | - |
|                                                          | Inferior Longitudinal Fasciculus Right | 60 | 0.9852 | -0.0083  | - | 0.8787 | -0.03443 | - | 0.6144 | -0.07029 | - |
|                                                          | Superior Longitudinal Fasciculus Left  | 65 | 0.9852 | -0.00317 | - | 0.8787 | 0.025159 | + | 0.854  | 0.031026 | + |
|                                                          | Superior Longitudinal Fasciculus Right | 63 | 0.9852 | -0.00808 | - | 0.8787 | -0.00755 | - | 0.7532 | -0.02956 | - |
| Altered fetal cerebral substrate delivery (Y/N)          | Corpus Callosum Genu                   | 67 | 0.6835 | -0.01446 | - | 0.6962 | 0.024721 | + | 0.9243 | -0.0128  | - |
|                                                          | Corpus Callosum Body                   | 67 | 0.7695 | -0.00611 | - | 0.6962 | 0.037624 | + | 0.9243 | 0.028719 | + |
|                                                          | Corpus Callosum Splenium               | 67 | 0.6835 | -0.02603 | - | 0.6962 | 0.063147 | + | 0.9243 | 0.007136 | + |
|                                                          | Cortical Spinal Tract Left             | 63 | 0.7695 | 0.007459 | + | 0.6962 | 0.051032 | + | 0.9243 | 0.080463 | + |
|                                                          | Cortical Spinal Tract Right            | 64 | 0.9879 | 0.000268 | + | 0.8842 | -0.01316 | - | 0.9243 | -0.02642 | - |
|                                                          | Fronto-occipital Fasciculus Left       | 59 | 0.7209 | -0.0104  | - | 0.8842 | -0.00703 | - | 0.9243 | -0.0482  | - |
|                                                          | Fronto-occipital Fasciculus Right      | 57 | 0.6835 | -0.01447 | - | 0.6962 | 0.03634  | + | 0.9243 | 0.017342 | + |
|                                                          | Inferior Longitudinal Fasciculus Left  | 61 | 0.6835 | -0.01441 | - | 0.6962 | 0.040979 | + | 0.9243 | 0.006228 | + |
|                                                          | Inferior Longitudinal Fasciculus Right | 60 | 0.6835 | -0.02064 | - | 0.6962 | 0.06083  | + | 0.9243 | 0.02504  | + |
|                                                          | Superior Longitudinal Fasciculus Left  | 65 | 0.7695 | 0.004878 | + | 0.6962 | -0.04964 | - | 0.9243 | -0.05584 | - |
|                                                          | Superior Longitudinal Fasciculus Right | 63 | 0.7695 | 0.007622 | + | 0.6962 | -0.05288 | - | 0.9243 | -0.06073 | - |
|                                                          |                                        |    |        |          |   |        |          |   |        |          |   |
| Altered fetal cerebral substrate delivery severity score | Corpus Callosum Genu                   | 67 | 0.9947 | -0.00874 | - | 0.9623 | 0.008013 | + | 0.7647 | -0.01184 | - |
|                                                          | Corpus Callosum Body                   | 67 | 0.9947 | 0.00116  | + | 0.9623 | -0.01231 | - | 0.7801 | -0.01003 | - |
|                                                          | Corpus Callosum Splenium               | 67 | 0.9947 | -0.01166 | - | 0.9623 | -0.00454 | - | 0.7647 | -0.03694 | - |
|                                                          | Cortical Spinal Tract Left             | 63 | 0.9947 | 0.005306 | + | 0.9623 | 0.004365 | + | 0.7647 | 0.019471 | + |
|                                                          | Cortical Spinal Tract Right            | 64 | 0.9947 | -0.00358 | - | 0.9623 | -0.01429 | - | 0.7647 | -0.03119 | - |
|                                                          | Fronto-occipital Fasciculus Left       | 59 | 0.9947 | -0.00367 | - | 0.9623 | -0.01668 | - | 0.7469 | -0.03374 | - |

|                   |                                        |    |        |          |   |        |          |   |        |          |   |
|-------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
|                   | Fronto-occipital Fasciculus Right      | 57 | 0.9947 | -0.00244 | - | 0.9623 | -0.00896 | - | 0.7647 | -0.01692 | - |
|                   | Inferior Longitudinal Fasciculus Left  | 61 | 0.9947 | -0.00151 | - | 0.9623 | -0.01575 | - | 0.7647 | -0.02683 | - |
|                   | Inferior Longitudinal Fasciculus Right | 60 | 0.9947 | -0.00532 | - | 0.9623 | -0.01239 | - | 0.7647 | -0.03159 | - |
|                   | Superior Longitudinal Fasciculus Left  | 65 | 0.9947 | -0.00021 | - | 0.9623 | 0.00159  | + | 0.9177 | 0.003762 | + |
|                   | Superior Longitudinal Fasciculus Right | 63 | 0.9947 | 4.31E-05 | + | 0.9623 | -0.02665 | - | 0.7469 | -0.03371 | - |
| <b>Heterotaxy</b> | Corpus Callosum Genu                   | 67 | 0.6823 | 0.008076 | + | 0.9619 | 0.013758 | + | 0.9712 | 0.040155 | + |
|                   | Corpus Callosum Body                   | 67 | 0.6823 | 0.009907 | + | 0.9619 | -0.02381 | - | 0.9712 | -0.01129 | - |
|                   | Corpus Callosum Splenium               | 67 | 0.6823 | 0.022114 | + | 0.9619 | -0.01577 | - | 0.9712 | 0.04345  | + |
|                   | Cortical Spinal Tract Left             | 63 | 0.6823 | -0.00729 | - | 0.9619 | 0.039912 | + | 0.9712 | 0.030931 | + |
|                   | Cortical Spinal Tract Right            | 64 | 0.6823 | 0.006673 | + | 0.9619 | 0.09922  | + | 0.8602 | 0.140218 | + |
|                   | Fronto-occipital Fasciculus Left       | 59 | 0.6823 | 0.008314 | + | 0.9619 | -0.01596 | - | 0.9712 | 0.001628 | + |
|                   | Fronto-occipital Fasciculus Right      | 57 | 0.6823 | 0.007157 | + | 0.9619 | -0.02559 | - | 0.9712 | -0.01525 | - |
|                   | Inferior Longitudinal Fasciculus Left  | 61 | 0.6823 | 0.006786 | + | 0.9619 | -0.01681 | - | 0.9712 | -0.00758 | - |
|                   | Inferior Longitudinal Fasciculus Right | 60 | 0.6823 | 0.010898 | + | 0.9619 | -0.04693 | - | 0.9712 | -0.03357 | - |
|                   | Superior Longitudinal Fasciculus Left  | 65 | 0.6823 | -0.0045  | - | 0.9645 | 0.003516 | + | 0.9712 | -0.00456 | - |
|                   | Superior Longitudinal Fasciculus Right | 63 | 0.6823 | -0.00554 | - | 0.9645 | 0.002066 | + | 0.9712 | -0.01323 | - |

FDR = false discovery rate, TGA = transposition of the great arteries

Supplement Table 2(B). Correlation between Clinical Risk Factors and Seed-Based Tractography Measurements: Preoperative Factors

| Independent                         | Dependent                              |    | Fractional Anisotropy |           |           | Radial Diffusivity |          |           | Axial Diffusivity |          |           |
|-------------------------------------|----------------------------------------|----|-----------------------|-----------|-----------|--------------------|----------|-----------|-------------------|----------|-----------|
|                                     |                                        |    | FDR p-value           | estimate  | direction | FDR p-value        | estimate | direction | FDR p-value       | estimate | direction |
| Preoperative ABG pH                 | Corpus Callosum Genu                   | 49 | 0.3314                | -0.07075  | -         | 0.3314             | 0.307776 | +         | 0.3314            | 0.26299  | +         |
|                                     | Corpus Callosum Body                   | 49 | 0.7733                | -0.02191  | -         | 0.7733             | 0.158816 | +         | 0.7733            | 0.198414 | +         |
|                                     | Corpus Callosum Splenium               | 49 | 0.7871                | -0.00709  | -         | 0.7871             | 0.150975 | +         | 0.7871            | 0.209561 | +         |
|                                     | Cortical Spinal Tract Left             | 49 | 0.7871                | 0.046419  | +         | 0.7871             | -0.30004 | -         | 0.7871            | -0.14687 | -         |
|                                     | Cortical Spinal Tract Right            | 48 | 0.9965                | 0.033128  | +         | 0.9965             | -0.10271 | -         | 0.9965            | -0.00181 | -         |
|                                     | Fronto-occipital Fasciculus Left       | 44 | 0.3601                | -0.01471  | -         | 0.3601             | 0.230523 | +         | 0.3601            | 0.275436 | +         |
|                                     | Fronto-occipital Fasciculus Right      | 44 | 0.2457                | 0.014959  | +         | 0.2457             | 0.275502 | +         | 0.2457            | 0.41909  | +         |
|                                     | Inferior Longitudinal Fasciculus Left  | 45 | 0.8016                | -0.00028  | -         | 0.8016             | 0.073216 | +         | 0.8016            | 0.09269  | +         |
|                                     | Inferior Longitudinal Fasciculus Right | 45 | 0.7871                | -0.00569  | -         | 0.7871             | 0.126899 | +         | 0.7871            | 0.18291  | +         |
|                                     | Superior Longitudinal Fasciculus Left  | 47 | 0.2457                | -0.0528   | -         | 0.2457             | 0.345473 | +         | 0.2457            | 0.37555  | +         |
|                                     | Superior Longitudinal Fasciculus Right | 47 | 0.2457                | -0.13868  | -         | 0.2457             | 0.540069 | +         | 0.2457            | 0.387389 | +         |
| Preoperative arterial blood gas pO2 | Corpus Callosum Genu                   | 46 | 0.1478                | 0.000153  | +         | 0.1478             | -0.00112 | -         | 0.1478            | -0.00112 | -         |
|                                     | Corpus Callosum Body                   | 46 | 0.1478                | 3.89E-05  | +         | 0.1478             | -0.00131 | -         | 0.1478            | -0.00171 | -         |
|                                     | Corpus Callosum Splenium               | 46 | 0.2091                | -1.50E-05 | -         | 0.2091             | -0.00117 | -         | 0.2091            | -0.00169 | -         |
|                                     | Cortical Spinal Tract Left             | 46 | 0.1839                | -0.00021  | -         | 0.1839             | -0.00097 | -         | 0.1839            | -0.00189 | -         |
|                                     | Cortical Spinal Tract Right            | 45 | 0.4092                | -0.00033  | -         | 0.4092             | -0.0002  | -         | 0.4092            | -0.00117 | -         |
|                                     | Fronto-occipital Fasciculus Left       | 43 | 0.1478                | -0.00012  | -         | 0.1478             | -0.00087 | -         | 0.1478            | -0.00145 | -         |
|                                     | Fronto-occipital Fasciculus Right      | 43 | 0.1478                | -9.70E-05 | -         | 0.1478             | -0.00084 | -         | 0.1478            | -0.00137 | -         |
|                                     | Inferior Longitudinal Fasciculus Left  | 44 | 0.2091                | -0.00013  | -         | 0.2091             | -0.00069 | -         | 0.2091            | -0.00124 | -         |
|                                     | Inferior Longitudinal Fasciculus Right | 43 | 0.2091                | -8.70E-06 | -         | 0.2091             | -0.00105 | -         | 0.2091            | -0.00146 | -         |
|                                     | Superior Longitudinal Fasciculus Left  | 44 | 0.2091                | -2.90E-05 | -         | 0.2091             | -0.00065 | -         | 0.2091            | -0.00098 | -         |
|                                     | Superior Longitudinal Fasciculus Right | 44 | 0.1478                | 0.00015   | +         | 0.1478             | -0.00136 | -         | 0.1478            | -0.00143 | -         |
| Preoperative arterial lactate       | Corpus Callosum Genu                   | 61 | 0.6741                | -9.90E-05 | -         | 0.6741             | -0.00947 | -         | 0.6741            | -0.01387 | -         |
|                                     | Corpus Callosum Body                   | 61 | 0.6741                | -0.00063  | -         | 0.6741             | -0.01496 | -         | 0.6741            | -0.01915 | -         |
|                                     | Corpus Callosum Splenium               | 61 | 0.6741                | -0.01098  | -         | 0.6741             | 0.005968 | +         | 0.6741            | -0.01907 | -         |

|                                  |                                        |    |        |          |   |        |          |   |        |          |   |
|----------------------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
|                                  | Cortical Spinal Tract Left             | 59 | 0.6741 | -0.01226 | - | 0.6741 | 0.057295 | + | 0.6741 | 0.04009  | + |
|                                  | Cortical Spinal Tract Right            | 59 | 0.4576 | -0.00837 | - | 0.4576 | 0.076284 | + | 0.4576 | 0.076886 | + |
|                                  | Fronto-occipital Fasciculus Left       | 55 | 0.6741 | 0.003895 | + | 0.6741 | -0.02227 | - | 0.6741 | -0.01945 | - |
|                                  | Fronto-occipital Fasciculus Right      | 53 | 0.6741 | -0.00355 | - | 0.6741 | 0.01411  | + | 0.6741 | 0.010941 | + |
|                                  | Inferior Longitudinal Fasciculus Left  | 56 | 0.6741 | -0.0014  | - | 0.6741 | 0.014433 | + | 0.6741 | 0.021102 | + |
|                                  | Inferior Longitudinal Fasciculus Right | 56 | 0.6741 | -0.00204 | - | 0.6741 | 0.012494 | + | 0.6741 | 0.017148 | + |
|                                  | Superior Longitudinal Fasciculus Left  | 59 | 0.6741 | 0.002505 | + | 0.6741 | 0.017154 | + | 0.6741 | 0.028751 | + |
|                                  | Superior Longitudinal Fasciculus Right | 57 | 0.6741 | -0.00102 | - | 0.6741 | -0.01863 | - | 0.6741 | -0.0269  | - |
| Preoperative hepatic dysfunction | Corpus Callosum Genu                   | 54 | 0.9615 | 0.053991 | + | 0.9615 | -0.17228 | - | 0.9615 | -0.08263 | - |
|                                  | Corpus Callosum Body                   | 54 | 0.9615 | 0.006071 | + | 0.9615 | -0.06592 | - | 0.9615 | -0.05331 | - |
|                                  | Corpus Callosum Splenium               | 54 | 0.9615 | 0.043953 | + | 0.9615 | -0.04122 | - | 0.9615 | 0.095591 | + |
|                                  | Cortical Spinal Tract Left             | 53 | 0.9615 | 0.012144 | + | 0.9615 | -0.18937 | - | 0.9615 | -0.22839 | - |
|                                  | Cortical Spinal Tract Right            | 53 | 0.9615 | -0.01818 | - | 0.9615 | -0.07387 | - | 0.9615 | -0.15125 | - |
|                                  | Fronto-occipital Fasciculus Left       | 49 | 0.9615 | 0.030854 | + | 0.9615 | -0.06994 | - | 0.9615 | -0.00477 | - |
|                                  | Fronto-occipital Fasciculus Right      | 48 | 0.9615 | 0.017796 | + | 0.9615 | -0.04842 | - | 0.9615 | -0.01221 | - |
|                                  | Inferior Longitudinal Fasciculus Left  | 50 | 0.9615 | 0.017752 | + | 0.9615 | -0.00032 | - | 0.9615 | 0.061029 | + |
|                                  | Inferior Longitudinal Fasciculus Right | 48 | 0.9615 | 0.016081 | + | 0.9615 | -0.05117 | - | 0.9615 | -0.01436 | - |
|                                  | Superior Longitudinal Fasciculus Left  | 52 | 0.9615 | 0.019517 | + | 0.9615 | -0.07513 | - | 0.9615 | -0.04411 | - |
|                                  | Superior Longitudinal Fasciculus Right | 52 | 0.9615 | 0.015254 | + | 0.9615 | -0.01276 | - | 0.9615 | 0.02523  | + |
| Preoperative inotrope use        | Corpus Callosum Genu                   | 67 | 0.9331 | -0.01753 | - | 0.9331 | 0.040097 | + | 0.9331 | 0.007437 | + |
|                                  | Corpus Callosum Body                   | 67 | 0.9331 | -0.0203  | - | 0.9331 | 0.041737 | + | 0.9331 | 0.005419 | + |
|                                  | Corpus Callosum Splenium               | 67 | 0.9331 | -0.01454 | - | 0.9331 | 0.028888 | + | 0.9331 | -0.00738 | - |
|                                  | Cortical Spinal Tract Left             | 63 | 0.9331 | -0.01745 | - | 0.9331 | 0.014416 | + | 0.9331 | -0.0119  | - |
|                                  | Cortical Spinal Tract Right            | 64 | 0.9331 | 0.001277 | + | 0.9331 | -0.01335 | - | 0.9331 | -0.00407 | - |
|                                  | Fronto-occipital Fasciculus Left       | 59 | 0.9331 | -0.01331 | - | 0.9331 | 0.03693  | + | 0.9331 | 0.014566 | + |
|                                  | Fronto-occipital Fasciculus Right      | 57 | 0.9331 | -0.0096  | - | 0.9331 | 0.020252 | + | 0.9331 | 0.004794 | + |
|                                  | Inferior Longitudinal Fasciculus Left  | 61 | 0.3377 | -0.01218 | - | 0.3377 | 0.061444 | + | 0.3377 | 0.054249 | + |
|                                  | Inferior Longitudinal Fasciculus Right | 60 | 0.3377 | -0.01561 | - | 0.3377 | 0.068817 | + | 0.3377 | 0.056773 | + |

|                                |                                        |    |        |          |   |        |          |   |        |          |   |
|--------------------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
|                                | Superior Longitudinal Fasciculus Left  | 65 | 0.3377 | -0.0153  | - | 0.3377 | 0.096748 | + | 0.3377 | 0.086187 | + |
|                                | Superior Longitudinal Fasciculus Right | 63 | 0.3377 | -0.02188 | - | 0.3377 | 0.073775 | + | 0.3377 | 0.044289 | + |
| Age at surgery                 | Corpus Callosum Genu                   | 67 | 0.9345 | -0.00117 | - | 0.9345 | 0.002572 | + | 0.9345 | 0.000376 | + |
|                                | Corpus Callosum Body                   | 67 | 0.2644 | -0.0011  | - | 0.2644 | 0.005815 | + | 0.2644 | 0.004589 | + |
|                                | Corpus Callosum Splenium               | 67 | 0.3052 | -0.00172 | - | 0.3052 | 0.007654 | + | 0.3052 | 0.004677 | + |
|                                | Cortical Spinal Tract Left             | 63 | 0.9345 | 0.000569 | + | 0.9345 | -0.00221 | - | 0.9345 | -0.00031 | - |
|                                | Cortical Spinal Tract Right            | 64 | 0.5506 | -0.0002  | - | 0.5506 | -0.00273 | - | 0.5506 | -0.00305 | - |
|                                | Fronto-occipital Fasciculus Left       | 59 | 0.0572 | -0.00041 | - | 0.0572 | 0.005624 | + | 0.0572 | 0.005786 | + |
|                                | Fronto-occipital Fasciculus Right      | 57 | 0.3052 | -0.00066 | - | 0.3052 | 0.003603 | + | 0.3052 | 0.002929 | + |
|                                | Inferior Longitudinal Fasciculus Left  | 61 | 0.5506 | -0.00076 | - | 0.5506 | 0.003818 | + | 0.5506 | 0.002213 | + |
|                                | Inferior Longitudinal Fasciculus Right | 60 | 0.3052 | -0.00084 | - | 0.3052 | 0.004909 | + | 0.3052 | 0.004056 | + |
|                                | Superior Longitudinal Fasciculus Left  | 65 | 0.3052 | -0.00074 | - | 0.3052 | 0.004375 | + | 0.3052 | 0.004525 | + |
|                                | Superior Longitudinal Fasciculus Right | 63 | 0.0908 | -0.00103 | - | 0.0908 | 0.005758 | + | 0.0908 | 0.004881 | + |
|                                |                                        |    |        |          |   |        |          |   |        |          |   |
| Age at surgery ≤ 7 days        | Corpus Callosum Genu                   | 67 | 0.6552 | 0.005772 | + | 0.6552 | -0.01686 | - | 0.6552 | -0.01356 | - |
|                                | Corpus Callosum Body                   | 67 | 0.6228 | 0.006861 | + | 0.6228 | -0.0352  | - | 0.6228 | -0.02943 | - |
|                                | Corpus Callosum Splenium               | 67 | 0.6228 | 0.002637 | + | 0.6228 | -0.03574 | - | 0.6228 | -0.04378 | - |
|                                | Cortical Spinal Tract Left             | 63 | 0.5118 | -0.01148 | - | 0.5118 | 0.079991 | + | 0.5118 | 0.063906 | + |
|                                | Cortical Spinal Tract Right            | 64 | 0.6228 | -0.00341 | - | 0.6228 | 0.046749 | + | 0.6228 | 0.042013 | + |
|                                | Fronto-occipital Fasciculus Left       | 59 | 0.2618 | -0.0028  | - | 0.2618 | -0.04199 | - | 0.2618 | -0.06239 | - |
|                                | Fronto-occipital Fasciculus Right      | 57 | 0.4528 | -0.00563 | - | 0.4528 | -0.01998 | - | 0.4528 | -0.04586 | - |
|                                | Inferior Longitudinal Fasciculus Left  | 61 | 0.7795 | -0.00047 | - | 0.7795 | -0.0086  | - | 0.7795 | -0.00995 | - |
|                                | Inferior Longitudinal Fasciculus Right | 60 | 0.6228 | -0.00084 | - | 0.6228 | -0.01593 | - | 0.6228 | -0.02655 | - |
|                                | Superior Longitudinal Fasciculus Left  | 65 | 0.6228 | 0.008183 | + | 0.6228 | -0.02897 | - | 0.6228 | -0.02875 | - |
|                                | Superior Longitudinal Fasciculus Right | 63 | 0.4528 | 0.012389 | + | 0.4528 | -0.05539 | - | 0.4528 | -0.04582 | - |
|                                |                                        |    |        |          |   |        |          |   |        |          |   |
| Post-conceptual age at surgery | Corpus Callosum Genu                   | 67 | 0.6785 | -0.00774 | - | 0.6785 | 0.00561  | + | 0.6785 | -0.01209 | - |
|                                | Corpus Callosum Body                   | 67 | 0.6785 | -0.00597 | - | 0.6785 | 0.020584 | + | 0.6785 | 0.011906 | + |
|                                | Corpus Callosum Splenium               | 67 | 0.6785 | -0.00888 | - | 0.6785 | 0.033556 | + | 0.6785 | 0.017444 | + |
|                                | Cortical Spinal Tract Left             | 63 | 0.771  | 0.002729 | + | 0.771  | 0.001417 | + | 0.771  | 0.01288  | + |

|  |                                        |    |        |          |   |        |          |   |        |          |   |
|--|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
|  | Cortical Spinal Tract Right            | 64 | 0.6785 | 0.000472 | + | 0.6785 | -0.0276  | - | 0.6785 | -0.03094 | - |
|  | Fronto-occipital Fasciculus Left       | 59 | 0.6785 | -0.00053 | - | 0.6785 | 0.021217 | + | 0.6785 | 0.023276 | + |
|  | Fronto-occipital Fasciculus Right      | 57 | 0.8559 | -0.001   | - | 0.8559 | 0.005772 | + | 0.8559 | 0.004038 | + |
|  | Inferior Longitudinal Fasciculus Left  | 61 | 0.9475 | -0.00356 | - | 0.9475 | 0.010604 | + | 0.9475 | 0.001122 | + |
|  | Inferior Longitudinal Fasciculus Right | 60 | 0.7794 | -0.00452 | - | 0.7794 | 0.016032 | + | 0.7794 | 0.008978 | + |
|  | Superior Longitudinal Fasciculus Left  | 65 | 0.6785 | -0.00133 | - | 0.6785 | 0.012333 | + | 0.6785 | 0.016586 | + |
|  | Superior Longitudinal Fasciculus Right | 63 | 0.6785 | -0.00299 | - | 0.6785 | 0.013194 | + | 0.6785 | 0.009479 | + |

ABG = arterial blood gas, FDR = false discovery rate

Supplemental Table 2(C): Correlation between Clinical Risk Factors and Seed-Based Tractography Measurements: Intra-operative Factors

| Independent                    | Dependent                              | N used | Fractional Anisotropy |           |           | Radial Diffusivity |           |           | Axial Diffusivity |          |           |
|--------------------------------|----------------------------------------|--------|-----------------------|-----------|-----------|--------------------|-----------|-----------|-------------------|----------|-----------|
|                                |                                        |        | FDR<br>p-value        | estimate  | direction | FDR<br>p-value     | estimate  | direction | FDR<br>p-value    | estimate | direction |
| Cardiopulmonary<br>bypass used | Corpus Callosum Genu                   | 77     | 0.735                 | 0.016777  | +         | 0.735              | -0.0159   | -         | 0.735             | 0.028427 | +         |
|                                | Corpus Callosum Body                   | 76     | 0.4484                | -2.60E-05 | -         | 0.4484             | 0.050815  | +         | 0.4484            | 0.074409 | +         |
|                                | Corpus Callosum Splenium               | 77     | 0.1441                | 0.011002  | +         | 0.1441             | 0.083436  | +         | 0.1441            | 0.159482 | +         |
|                                | Cortical Spinal Tract Left             | 64     | 0.735                 | 0.021301  | +         | 0.735              | -0.06349  | -         | 0.735             | -0.03302 | -         |
|                                | Cortical Spinal Tract Right            | 68     | 0.1558                | 0.008048  | +         | 0.1558             | -0.10109  | -         | 0.1558            | -0.10565 | -         |
|                                | Fronto-occipital Fasciculus Left       | 66     | 0.1558                | 0.01027   | +         | 0.1558             | 0.039807  | +         | 0.1558            | 0.081429 | +         |
|                                | Fronto-occipital Fasciculus Right      | 68     | 0.1558                | 0.008341  | +         | 0.1558             | 0.062665  | +         | 0.1558            | 0.103124 | +         |
|                                | Inferior Longitudinal Fasciculus Left  | 70     | 0.9028                | 0.000844  | +         | 0.9028             | -0.00328  | -         | 0.9028            | 0.006017 | +         |
|                                | Inferior Longitudinal Fasciculus Right | 70     | 0.1558                | 0.006367  | +         | 0.1558             | 0.041095  | +         | 0.1558            | 0.078695 | +         |
|                                | Superior Longitudinal Fasciculus Left  | 72     | 0.8049                | 0.008416  | +         | 0.8049             | 0.000371  | +         | 0.8049            | 0.018732 | +         |
|                                | Superior Longitudinal Fasciculus Right | 75     | 0.735                 | -0.00806  | -         | 0.735              | 0.033651  | +         | 0.735             | 0.024155 | +         |
| Cardiopulmonary<br>bypass time | Corpus Callosum Genu                   | 68     | 0.2055                | -0.00028  | -         | 0.2055             | 0.000868  | +         | 0.2055            | 0.000506 | +         |
|                                | Corpus Callosum Body                   | 68     | 0.546                 | -0.00011  | -         | 0.546              | 0.00042   | +         | 0.546             | 0.000339 | +         |
|                                | Corpus Callosum Splenium               | 68     | 0.0875                | -0.00024  | -         | 0.0875             | 0.00107   | +         | 0.0875            | 0.000952 | +         |
|                                | Cortical Spinal Tract Left             | 56     | 0.3848                | 3.66E-05  | +         | 0.3848             | 0.000175  | +         | 0.3848            | 0.000414 | +         |
|                                | Cortical Spinal Tract Right            | 60     | 0.7093                | 3.64E-05  | +         | 0.7093             | 2.42E-05  | +         | 0.7093            | 0.000169 | +         |
|                                | Fronto-occipital Fasciculus Left       | 57     | <b>0.0242</b>         | -9.30E-05 | -         | <b>0.0242</b>      | 0.000793  | +         | <b>0.0242</b>     | 0.000821 | +         |
|                                | Fronto-occipital Fasciculus Right      | 59     | 0.099                 | -5.90E-05 | -         | 0.099              | 0.00062   | +         | 0.099             | 0.000711 | +         |
|                                | Inferior Longitudinal Fasciculus Left  | 61     | 0.1493                | -7.80E-05 | -         | 0.1493             | 0.000585  | +         | 0.1493            | 0.000602 | +         |
|                                | Inferior Longitudinal Fasciculus Right | 61     | 0.2224                | -6.60E-05 | -         | 0.2224             | 0.000392  | +         | 0.2224            | 0.000431 | +         |
|                                | Superior Longitudinal Fasciculus Left  | 64     | 0.8158                | -1.10E-05 | -         | 0.8158             | 9.54E-05  | +         | 0.8158            | 0.000108 | +         |
|                                | Superior Longitudinal Fasciculus Right | 66     | 0.9628                | -9.00E-05 | -         | 0.9628             | 0.000143  | +         | 0.9628            | 1.24E-05 | +         |
| Aortic cross-clamp<br>used     | Corpus Callosum Genu                   | 73     | 0.9332                | -0.01579  | -         | 0.9332             | 0.034647  | +         | 0.9332            | 0.018625 | +         |
|                                | Corpus Callosum Body                   | 72     | 0.9332                | -0.01097  | -         | 0.9332             | 0.01802   | +         | 0.9332            | 0.004487 | +         |
|                                | Corpus Callosum Splenium               | 73     | 0.6977                | -0.02547  | -         | 0.6977             | 0.075579  | +         | 0.6977            | 0.050983 | +         |
|                                | Cortical Spinal Tract Left             | 60     | 0.9332                | -0.0055   | -         | 0.9332             | 0.013854  | +         | 0.9332            | 0.012673 | +         |
|                                | Cortical Spinal Tract Right            | 64     | 0.766                 | -0.00062  | -         | 0.766              | -0.03389  | -         | 0.766             | -0.03616 | -         |
|                                | Fronto-occipital Fasciculus Left       | 62     | 0.0688                | -0.01318  | -         | 0.0688             | 0.079158  | +         | 0.0688            | 0.074776 | +         |
|                                | Fronto-occipital Fasciculus Right      | 64     | 0.1368                | -0.00989  | -         | 0.1368             | 0.064878  | +         | 0.1368            | 0.072317 | +         |
|                                | Inferior Longitudinal Fasciculus Left  | 66     | 0.9332                | -0.01443  | -         | 0.9332             | 0.019871  | +         | 0.9332            | -0.0029  | -         |
|                                | Inferior Longitudinal Fasciculus Right | 66     | 0.0688                | -0.01159  | -         | 0.0688             | 0.071165  | +         | 0.0688            | 0.078215 | +         |
|                                | Superior Longitudinal Fasciculus Left  | 68     | 0.9332                | -0.00628  | -         | 0.9332             | 0.018914  | +         | 0.9332            | 0.010478 | +         |
|                                | Superior Longitudinal Fasciculus Right | 71     | 0.9332                | -0.02162  | -         | 0.9332             | 0.039107  | +         | 0.9332            | 0.006731 | +         |
| Aortic cross-clamp<br>time     | Corpus Callosum Genu                   | 50     | <b>0.0033</b>         | -0.00027  | -         | <b>0.0033</b>      | 0.001807  | +         | <b>0.0033</b>     | 0.001756 | +         |
|                                | Corpus Callosum Body                   | 50     | 0.3738                | 2.86E-05  | +         | 0.3738             | 0.000765  | +         | 0.3738            | 0.000955 | +         |
|                                | Corpus Callosum Splenium               | 50     | <b>0.0033</b>         | -0.00022  | -         | <b>0.0033</b>      | 0.002161  | +         | <b>0.0033</b>     | 0.002439 | +         |
|                                | Cortical Spinal Tract Left             | 40     | 0.4586                | 0.000134  | +         | 0.4586             | 0.000132  | +         | 0.4586            | 0.000518 | +         |
|                                | Cortical Spinal Tract Right            | 43     | 0.4586                | 0.00016   | +         | 0.4586             | -2.10E-05 | -         | 0.4586            | 0.000357 | +         |
|                                | Fronto-occipital Fasciculus Left       | 42     | 0.3738                | -2.40E-05 | -         | 0.3738             | 0.000549  | +         | 0.3738            | 0.000582 | +         |
|                                | Fronto-occipital Fasciculus Right      | 42     | 0.3738                | 4.94E-05  | +         | 0.3738             | 0.000613  | +         | 0.3738            | 0.000909 | +         |

|                                          |                                             |    |        |           |   |        |           |   |        |           |   |
|------------------------------------------|---------------------------------------------|----|--------|-----------|---|--------|-----------|---|--------|-----------|---|
|                                          | Inferior Longitudinal Fasciculus Left       | 44 | 0.3738 | 1.66E-05  | + | 0.3738 | 0.000503  | + | 0.3738 | 0.000718  | + |
|                                          | Inferior Longitudinal Fasciculus Right      | 43 | 0.5436 | -1.90E-05 | - | 0.5436 | 0.00023   | + | 0.5436 | 0.000332  | + |
|                                          | Superior Longitudinal Fasciculus Left       | 48 | 0.7624 | 0.000141  | + | 0.7624 | -3.40E-05 | - | 0.7624 | 0.000177  | + |
|                                          | Superior Longitudinal Fasciculus Right      | 49 | 0.5436 | 0.000141  | + | 0.5436 | 5.47E-05  | + | 0.5436 | 0.000326  | + |
| <b>Circulatory Arrest/<br/>DHCA used</b> | Corpus Callosum Genu                        | 74 | 0.8783 | 0.002428  | + | 0.8783 | -0.00525  | - | 0.8783 | -0.00144  | - |
|                                          | Corpus Callosum Body                        | 73 | 0.9062 | 0.002194  | + | 0.9062 | -0.00443  | - | 0.9062 | -0.00053  | - |
|                                          | Corpus Callosum Splenium                    | 74 | 0.8783 | 0.000956  | + | 0.8783 | -0.00337  | - | 0.8783 | -0.00293  | - |
|                                          | Cortical Spinal Tract Left                  | 61 | 0.8783 | 0.001633  | + | 0.8783 | -0.00384  | - | 0.8783 | -0.00173  | - |
|                                          | Cortical Spinal Tract Right                 | 65 | 0.8783 | 0.001175  | + | 0.8783 | -0.00402  | - | 0.8783 | -0.00305  | - |
|                                          | Fronto-occipital Fasciculus Left            | 63 | 0.8783 | 0.001372  | + | 0.8783 | -0.00409  | - | 0.8783 | -0.00226  | - |
|                                          | Fronto-occipital Fasciculus Right           | 65 | 0.8783 | 0.001525  | + | 0.8783 | -0.00507  | - | 0.8783 | -0.00419  | - |
|                                          | Inferior Longitudinal Fasciculus Left       | 67 | 0.8783 | 0.001105  | + | 0.8783 | -0.00332  | - | 0.8783 | -0.00191  | - |
|                                          | Inferior Longitudinal Fasciculus Right      | 67 | 0.9062 | 0.001415  | + | 0.9062 | -0.00182  | - | 0.9062 | 0.000412  | + |
|                                          | Superior Longitudinal Fasciculus Left       | 69 | 0.8783 | 0.001224  | + | 0.8783 | -0.00014  | - | 0.8783 | 0.002729  | + |
|                                          | Superior Longitudinal Fasciculus Right      | 72 | 0.8783 | 0.001809  | + | 0.8783 | -0.00371  | - | 0.8783 | -0.00107  | - |
| <b>Circulatory Arrest/<br/>DHCA time</b> | Corpus Callosum Genu                        | 63 | 0.5665 | 0.000627  | + | 0.5665 | -0.0024   | - | 0.5665 | -0.00186  | - |
|                                          | Corpus Callosum Body                        | 63 | 0.9711 | 0.000227  | + | 0.9711 | -0.00052  | - | 0.9711 | -4.60E-05 | - |
|                                          | Corpus Callosum Splenium                    | 63 | 0.9711 | 0.00098   | + | 0.9711 | -0.00176  | - | 0.9711 | 0.000125  | + |
|                                          | Cortical Spinal Tract Left                  | 51 | 0.9711 | 0.000652  | + | 0.9711 | -0.00102  | - | 0.9711 | -0.00017  | - |
|                                          | Cortical Spinal Tract Right                 | 56 | 0.9711 | 0.000401  | + | 0.9711 | -0.00047  | - | 0.9711 | -4.90E-05 | - |
|                                          | Fronto-occipital Fasciculus Left            | 52 | 0.662  | 0.000366  | + | 0.662  | -0.00132  | - | 0.662  | -0.0009   | - |
|                                          | Fronto-occipital Fasciculus Right           | 54 | 0.6899 | 0.000216  | + | 0.6899 | 0.000389  | + | 0.6899 | 0.000908  | + |
|                                          | Inferior Longitudinal Fasciculus Left       | 57 | 0.8211 | 0.000269  | + | 0.8211 | -0.00096  | - | 0.8211 | -0.00061  | - |
|                                          | Inferior Longitudinal Fasciculus 1(a) Right | 56 | 0.662  | 0.000293  | + | 0.662  | -0.00115  | - | 0.662  | -0.00104  | - |
|                                          | Superior Longitudinal Fasciculus Left       | 59 | 0.662  | -8.50E-05 | - | 0.662  | -0.00119  | - | 0.662  | -0.00158  | - |
|                                          | Superior Longitudinal Fasciculus Right      | 61 | 0.662  | 0.000356  | + | 0.662  | -0.00135  | - | 0.662  | -0.00089  | - |

DHCA = deep hypothermic circulatory arrest, FDR = false discovery rate



Supplemental Table 2(D). Correlation between Clinical Risk Factors and Seed-Based Tractography Measurements: Post-operative Factors

| Independent                                 | Dependent                              | Fractional Anisotropy |             |          |           | Radial Diffusivity |          |           | Axial Diffusivity |          |           |
|---------------------------------------------|----------------------------------------|-----------------------|-------------|----------|-----------|--------------------|----------|-----------|-------------------|----------|-----------|
| Clinical Factors                            | Tract                                  | N used                | FDR p-value | estimate | direction | FDR p-value        | estimate | direction | FDR p-value       | estimate | Direction |
| ECMO during 1 <sup>st</sup> hospitalization | Corpus Callosum Genu                   | 76                    | 0.7058      | -0.03412 | -         | 0.7058             | 0.029078 | +         | 0.7058            | -0.05894 | -         |
|                                             | Corpus Callosum Body                   | 75                    | 0.9448      | -0.03663 | -         | 0.9448             | 0.073901 | +         | 0.9448            | -0.004   | -         |
|                                             | Corpus Callosum Splenium               | 76                    | 0.9448      | -0.055   | -         | 0.9448             | 0.114426 | +         | 0.9448            | 0.007934 | +         |
|                                             | Cortical Spinal Tract Left             | 63                    | 0.7058      | -0.03556 | -         | 0.7058             | 0.022746 | +         | 0.7058            | -0.05494 | -         |
|                                             | Cortical Spinal Tract Right            | 67                    | 0.9448      | -0.01327 | -         | 0.9448             | 0.011401 | +         | 0.9448            | -0.01411 | -         |
|                                             | Fronto-occipital Fasciculus Left       | 65                    | 0.752       | -0.03055 | -         | 0.752              | 0.083559 | +         | 0.752             | 0.027344 | +         |
|                                             | Fronto-occipital Fasciculus Right      | 67                    | 0.7058      | -0.0199  | -         | 0.7058             | 0.074555 | +         | 0.7058            | 0.041133 | +         |
|                                             | Inferior Longitudinal Fasciculus Left  | 69                    | 0.752       | -0.02982 | -         | 0.752              | 0.079034 | +         | 0.752             | 0.028892 | +         |
|                                             | Inferior Longitudinal Fasciculus Right | 69                    | 0.7058      | -0.02244 | -         | 0.7058             | 0.09357  | +         | 0.7058            | 0.067048 | +         |
|                                             | Superior Longitudinal Fasciculus Left  | 71                    | 0.7058      | -0.02308 | -         | 0.7058             | 0.071616 | +         | 0.7058            | 0.042119 | +         |
|                                             | Superior Longitudinal Fasciculus Right | 74                    | 0.7058      | -0.02336 | -         | 0.7058             | 0.003069 | +         | 0.7058            | -0.04522 | -         |
|                                             | Corpus Callosum Genu                   | 74                    | 0.9759      | -0.00184 | -         | 0.9759             | 0.007313 | +         | 0.9759            | 0.001751 | +         |
| Time on ECMO                                | Corpus Callosum Body                   | 73                    | 0.9759      | -0.00329 | -         | 0.9759             | 0.012814 | +         | 0.9759            | 0.004724 | +         |
|                                             | Corpus Callosum Splenium               | 74                    | 0.8118      | -0.00833 | -         | 0.8118             | 0.031195 | +         | 0.8118            | 0.019203 | +         |
|                                             | Cortical Spinal Tract Left             | 61                    | 0.8118      | -0.00149 | -         | 0.8118             | -0.01004 | -         | 0.8118            | -0.01942 | -         |
|                                             | Cortical Spinal Tract Right            | 65                    | 0.8118      | 0.001005 | +         | 0.8118             | -0.01054 | -         | 0.8118            | -0.013   | -         |
|                                             | Fronto-occipital Fasciculus Left       | 63                    | 0.9759      | 0.000188 | +         | 0.9759             | 0.002638 | +         | 0.9759            | 0.001247 | +         |
|                                             | Fronto-occipital Fasciculus Right      | 65                    | 0.9759      | 0.002573 | +         | 0.9759             | -0.00074 | -         | 0.9759            | 0.000345 | +         |
|                                             | Inferior Longitudinal Fasciculus Left  | 67                    | 0.8461      | -0.00083 | -         | 0.8461             | 0.007676 | +         | 0.8461            | 0.007593 | +         |
|                                             | Inferior Longitudinal Fasciculus Right | 67                    | 0.8461      | 0.000773 | +         | 0.8461             | 0.003993 | +         | 0.8461            | 0.005959 | +         |
|                                             | Superior Longitudinal Fasciculus Left  | 69                    | 0.8118      | 0.000795 | +         | 0.8118             | 0.007455 | +         | 0.8118            | 0.011451 | +         |
|                                             | Superior Longitudinal Fasciculus Right | 72                    | 0.8118      | 0.002414 | +         | 0.8118             | -0.0097  | -         | 0.8118            | -0.00836 | -         |
|                                             | Corpus Callosum Genu                   | 77                    | 0.4591      | 0.001451 | +         | 0.4591             | 0.015924 | +         | 0.4591            | 0.037505 | +         |
|                                             | Corpus Callosum Body                   | 76                    | 0.4075      | -0.00391 | -         | 0.4075             | 0.043925 | +         | 0.4075            | 0.057448 | +         |
| Delayed sternal closure                     | Corpus Callosum Splenium               | 77                    | 0.2387      | 0.004541 | +         | 0.2387             | 0.063487 | +         | 0.2387            | 0.117711 | +         |
|                                             | Cortical Spinal Tract Left             | 64                    | 0.6958      | -0.01221 | -         | 0.6958             | 0.000317 | +         | 0.6958            | -0.0236  | -         |



|                                                |                                        |    |        |           |   |        |           |   |        |          |   |
|------------------------------------------------|----------------------------------------|----|--------|-----------|---|--------|-----------|---|--------|----------|---|
|                                                | Superior Longitudinal Fasciculus Right | 75 | 0.5153 | -4.80E-05 | - | 0.5153 | 0.000378  | + | 0.5153 | 0.000354 | + |
| Hospital length of stay (days)                 | Corpus Callosum Genu                   | 77 | 0.1991 | -0.00017  | - | 0.1991 | 0.001045  | + | 0.1991 | 0.000766 | + |
|                                                | Corpus Callosum Body                   | 76 | 0.0677 | -0.00027  | - | 0.0677 | 0.001768  | + | 0.0677 | 0.001455 | + |
|                                                | Corpus Callosum Splenium               | 77 | 0.0677 | -0.00023  | - | 0.0677 | 0.001493  | + | 0.0677 | 0.001418 | + |
|                                                | Cortical Spinal Tract Left             | 64 | 0.5042 | -9.60E-05 | - | 0.5042 | -9.70E-05 | - | 0.5042 | -0.00047 | - |
|                                                | Cortical Spinal Tract Right            | 68 | 0.4444 | 9.33E-06  | + | 0.4444 | 0.000477  | + | 0.4444 | 0.000632 | + |
|                                                | Fronto-occipital Fasciculus Left       | 66 | 0.5042 | -0.00013  | - | 0.5042 | 2.64E-05  | + | 0.5042 | -0.00035 | - |
|                                                | Fronto-occipital Fasciculus Right      | 68 | 0.0913 | -9.30E-05 | - | 0.0913 | 0.001053  | + | 0.0913 | 0.001019 | + |
|                                                | Inferior Longitudinal Fasciculus Left  | 70 | 0.896  | -3.70E-05 | - | 0.896  | 9.79E-05  | + | 0.896  | 6.57E-05 | + |
|                                                | Inferior Longitudinal Fasciculus Right | 70 | 0.407  | -0.00013  | - | 0.407  | -6.10E-05 | - | 0.407  | -0.00051 | - |
|                                                | Superior Longitudinal Fasciculus Left  | 72 | 0.5042 | -8.10E-05 | - | 0.5042 | 0.000473  | + | 0.5042 | 0.000404 | + |
|                                                | Superior Longitudinal Fasciculus Right | 75 | 0.7669 | -2.30E-06 | - | 0.7669 | 0.000155  | + | 0.7669 | 0.000145 | + |
|                                                | Corpus Callosum Genu                   | 77 | 0.7469 | -0.06229  | - | 0.7469 | 0.102809  | + | 0.7469 | -0.04365 | - |
| Expired during 1 <sup>st</sup> hospitalization | Corpus Callosum Body                   | 76 | 0.6814 | -0.06301  | - | 0.6814 | 0.068919  | + | 0.6814 | -0.08296 | - |
|                                                | Corpus Callosum Splenium               | 77 | 0.8863 | -0.04778  | - | 0.8863 | 0.082769  | + | 0.8863 | -0.01361 | - |
|                                                | Cortical Spinal Tract Left             | 64 | 0.7469 | 0.014382  | + | 0.7469 | -0.06153  | - | 0.7469 | -0.05604 | - |
|                                                | Cortical Spinal Tract Right            | 68 | 0.5766 | -0.01471  | - | 0.5766 | 0.114571  | + | 0.5766 | 0.125818 | + |
|                                                | Fronto-occipital Fasciculus Left       | 66 | 0.7469 | -0.06108  | - | 0.7469 | 0.150587  | + | 0.7469 | 0.049177 | + |
|                                                | Fronto-occipital Fasciculus Right      | 68 | 0.0902 | -0.02612  | - | 0.0902 | 0.212878  | + | 0.0902 | 0.21198  | + |
|                                                | Inferior Longitudinal Fasciculus Left  | 70 | 0.2382 | 0.024092  | + | 0.2382 | 0.072168  | + | 0.2382 | 0.166984 | + |
|                                                | Inferior Longitudinal Fasciculus Right | 70 | 0.7469 | -0.03041  | - | 0.7469 | 0.045295  | + | 0.7469 | -0.02939 | - |
|                                                | Superior Longitudinal Fasciculus Left  | 72 | 0.2382 | -0.02791  | - | 0.2382 | -0.05479  | - | 0.2382 | -0.13449 | - |
|                                                | Superior Longitudinal Fasciculus Right | 75 | 0.132  | -0.04177  | - | 0.132  | -0.04552  | - | 0.132  | -0.13627 | - |
|                                                | Corpus Callosum Genu                   | 77 | 0.2805 | -0.04129  | - | 0.2805 | 0.002462  | + | 0.2805 | -0.1258  | - |
|                                                | Corpus Callosum Body                   | 76 | 0.951  | -0.05284  | - | 0.951  | 0.079766  | + | 0.951  | -0.03755 | - |
|                                                | Corpus Callosum Splenium               | 77 | 0.4092 | -0.06263  | - | 0.4092 | 0.025056  | + | 0.4092 | -0.13809 | - |
|                                                | Cortical Spinal Tract Left             | 64 | 0.951  | -0.03756  | - | 0.951  | 0.048189  | + | 0.951  | -0.01711 | - |
|                                                | Cortical Spinal Tract Right            | 68 | 0.951  | -0.02054  | - | 0.951  | 0.045018  | + | 0.951  | 0.013218 | + |

|                                               |                                        |    |        |          |   |        |          |   |        |          |   |
|-----------------------------------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
| Required CPR, 1 <sup>st</sup> hospitalization | Fronto-occipital Fasciculus Left       | 66 | 0.951  | -0.04951 | - | 0.951  | 0.069117 | + | 0.951  | -0.03622 | - |
|                                               | Fronto-occipital Fasciculus Right      | 68 | 0.951  | -0.02077 | - | 0.951  | 0.0366   | + | 0.951  | -0.00455 | - |
|                                               | Inferior Longitudinal Fasciculus Left  | 70 | 0.951  | -0.00909 | - | 0.951  | -0.02814 | - | 0.951  | -0.07204 | - |
|                                               | Inferior Longitudinal Fasciculus Right | 70 | 0.951  | -0.02903 | - | 0.951  | 0.035669 | + | 0.951  | -0.01976 | - |
|                                               | Superior Longitudinal Fasciculus Left  | 72 | 0.951  | -0.0193  | - | 0.951  | 0.051894 | + | 0.951  | 0.024812 | + |
|                                               | Superior Longitudinal Fasciculus Right | 75 | 0.0682 | -0.03126 | - | 0.0682 | -0.07255 | - | 0.0682 | -0.15072 | - |
| Seizures, 1 <sup>st</sup> hospitalization     | Corpus Callosum Genu                   | 77 | 0.928  | -0.01981 | - | 0.928  | 0.040585 | + | 0.928  | -0.00791 | - |
|                                               | Corpus Callosum Body                   | 76 | 0.928  | -0.02357 | - | 0.928  | 0.048572 | + | 0.928  | -0.00779 | - |
|                                               | Corpus Callosum Splenium               | 77 | 0.928  | -0.02338 | - | 0.928  | 0.055041 | + | 0.928  | 0.011654 | + |
|                                               | Cortical Spinal Tract Left             | 64 | 0.8362 | 0.009867 | + | 0.8362 | -0.05503 | - | 0.8362 | -0.05355 | - |
|                                               | Cortical Spinal Tract Right            | 68 | 0.928  | -0.01524 | - | 0.928  | 0.031432 | + | 0.928  | 0.004684 | + |
|                                               | Fronto-occipital Fasciculus Left       | 66 | 0.928  | -0.00111 | - | 0.928  | 0.001407 | + | 0.928  | -0.0055  | - |
|                                               | Fronto-occipital Fasciculus Right      | 68 | 0.8362 | -0.00383 | - | 0.8362 | 0.046043 | + | 0.8362 | 0.035399 | + |
|                                               | Inferior Longitudinal Fasciculus Left  | 70 | 0.8362 | -0.01104 | - | 0.8362 | 0.059667 | + | 0.8362 | 0.050683 | + |
|                                               | Inferior Longitudinal Fasciculus Right | 70 | 0.8362 | -0.01471 | - | 0.8362 | -0.00618 | - | 0.8362 | -0.04778 | - |
|                                               | Superior Longitudinal Fasciculus Left  | 72 | 0.8362 | -0.00598 | - | 0.8362 | -0.0159  | - | 0.8362 | -0.0365  | - |
|                                               | Superior Longitudinal Fasciculus Right | 75 | 0.8362 | -0.0127  | - | 0.8362 | -0.01584 | - | 0.8362 | -0.04335 | - |
|                                               | Corpus Callosum Genu                   | 77 | 0.8885 | -0.01866 | - | 0.8885 | 0.052081 | + | 0.8885 | 0.011252 | + |
| Discharged on antiepileptics                  | Corpus Callosum Body                   | 76 | 0.513  | -0.02364 | - | 0.513  | 0.112211 | + | 0.513  | 0.073857 | + |
|                                               | Corpus Callosum Splenium               | 77 | 0.4396 | -0.03409 | - | 0.4396 | 0.13782  | + | 0.4396 | 0.092712 | + |
|                                               | Cortical Spinal Tract Left             | 64 | 0.8885 | -0.01934 | - | 0.8885 | 0.021952 | + | 0.8885 | -0.01226 | - |
|                                               | Cortical Spinal Tract Right            | 68 | 0.9169 | -0.02445 | - | 0.9169 | 0.045799 | + | 0.9169 | 0.00526  | + |
|                                               | Fronto-occipital Fasciculus Left       | 66 | 0.7713 | -0.01594 | - | 0.7713 | 0.055985 | + | 0.7713 | 0.028876 | + |
|                                               | Fronto-occipital Fasciculus Right      | 68 | 0.8885 | -0.0158  | - | 0.8885 | 0.045901 | + | 0.8885 | 0.013148 | + |
|                                               | Inferior Longitudinal Fasciculus Left  | 70 | 0.4396 | -0.02475 | - | 0.4396 | 0.103357 | + | 0.4396 | 0.070695 | + |
|                                               | Inferior Longitudinal Fasciculus Right | 70 | 0.513  | -0.0217  | - | 0.513  | 0.07475  | + | 0.513  | 0.047209 | + |
|                                               | Superior Longitudinal Fasciculus Left  | 72 | 0.2904 | -0.01649 | - | 0.2904 | 0.111209 | + | 0.2904 | 0.105435 | + |
|                                               | Superior Longitudinal Fasciculus Right | 75 | 0.7713 | -0.01789 | - | 0.7713 | 0.05664  | + | 0.7713 | 0.030899 | + |

|                                                               |                                        |    |        |          |   |        |          |   |        |          |   |
|---------------------------------------------------------------|----------------------------------------|----|--------|----------|---|--------|----------|---|--------|----------|---|
| <b>Discharged with<br/>gastrostomy tube</b>                   | Corpus Callosum Genu                   | 77 | 0.9463 | -0.02378 | - | 0.9463 | 0.045061 | + | 0.9463 | -0.00656 | - |
|                                                               | Corpus Callosum Body                   | 76 | 0.9463 | -0.03185 | - | 0.9463 | 0.097851 | + | 0.9463 | 0.038822 | + |
|                                                               | Corpus Callosum Splenium               | 77 | 0.9463 | -0.03991 | - | 0.9463 | 0.112127 | + | 0.9463 | 0.047781 | + |
|                                                               | Cortical Spinal Tract Left             | 64 | 0.9463 | -0.04113 | - | 0.9463 | 0.059039 | + | 0.9463 | -0.01516 | - |
|                                                               | Cortical Spinal Tract Right            | 68 | 0.1012 | -0.02868 | - | 0.1012 | 0.138911 | + | 0.1012 | 0.112626 | + |
|                                                               | Fronto-occipital Fasciculus Left       | 66 | 0.9463 | -0.01624 | - | 0.9463 | 0.01324  | + | 0.9463 | -0.02054 | - |
|                                                               | Fronto-occipital Fasciculus Right      | 68 | 0.9463 | -0.01524 | - | 0.9463 | 0.019664 | + | 0.9463 | -0.01074 | - |
|                                                               | Inferior Longitudinal Fasciculus Left  | 70 | 0.9463 | -0.01816 | - | 0.9463 | 0.046625 | + | 0.9463 | 0.014156 | + |
|                                                               | Inferior Longitudinal Fasciculus Right | 70 | 0.9463 | -0.0179  | - | 0.9463 | 0.045762 | + | 0.9463 | 0.017189 | + |
|                                                               | Superior Longitudinal Fasciculus Left  | 72 | 0.4675 | -0.01286 | - | 0.4675 | 0.076576 | + | 0.4675 | 0.068868 | + |
|                                                               | Superior Longitudinal Fasciculus Right | 75 | 0.9472 | -0.01614 | - | 0.9472 | 0.031585 | + | 0.9472 | 0.002139 | + |
| <b>Discharged with<br/>tracheostomy and/or<br/>ventilator</b> | Corpus Callosum Genu                   | 77 | 0.9107 | -0.03908 | - | 0.9107 | 0.10018  | + | 0.9107 | 0.030602 | + |
|                                                               | Corpus Callosum Body                   | 76 | 0.9107 | -0.04677 | - | 0.9107 | 0.079856 | + | 0.9107 | -0.02494 | - |
|                                                               | Corpus Callosum Splenium               | 77 | 0.9107 | -0.04274 | - | 0.9107 | 0.048099 | + | 0.9107 | -0.05716 | - |
|                                                               | Cortical Spinal Tract Left             | 64 | 0.9107 | -0.02706 | - | 0.9107 | -0.0088  | - | 0.9107 | -0.07655 | - |
|                                                               | Cortical Spinal Tract Right            | 68 | 0.9107 | -0.01912 | - | 0.9107 | 0.069307 | + | 0.9107 | 0.049811 | + |
|                                                               | Fronto-occipital Fasciculus Left       | 66 | 0.9107 | -0.02801 | - | 0.9107 | 0.042716 | + | 0.9107 | -0.00969 | - |
|                                                               | Fronto-occipital Fasciculus Right      | 68 | 0.9107 | -0.04766 | - | 0.9107 | 0.016829 | + | 0.9107 | -0.07814 | - |
|                                                               | Inferior Longitudinal Fasciculus Left  | 70 | 0.9107 | -0.04943 | - | 0.9107 | 0.100073 | + | 0.9107 | 0.030753 | + |
|                                                               | Inferior Longitudinal Fasciculus Right | 70 | 0.9107 | -0.02542 | - | 0.9107 | 0.031502 | + | 0.9107 | -0.0208  | - |
|                                                               | Superior Longitudinal Fasciculus Left  | 72 | 0.9107 | -0.02493 | - | 0.9107 | 0.056929 | + | 0.9107 | 0.010572 | + |
|                                                               | Superior Longitudinal Fasciculus Right | 75 | 0.9107 | -0.01791 | - | 0.9107 | 0.01787  | + | 0.9107 | -0.02822 | - |

FDR = false discovery rate, CPR=cardiopulmonary resuscitation, ECMO=extra corporeal membrane oxygenation, ICU=intensive care unit