**Supplementary Material**

|  |  |  |  |
| --- | --- | --- | --- |
| Supplementary Table S1. qPCR primer set | | | |
| Primers | Assay ID | Amplicon size (bp) | Company |
| *B2M* | Hs00187842\_m1 | 64 | Thermo Fisher Scientific, USA |
| *CSPG4* | Hs00426981\_m1 | 113 | Thermo Fisher Scientific, USA |
| *DCX* | Hs00167057\_m1 | 77 | Thermo Fisher Scientific, USA |
| *GFAP* | Hs00909233\_m1 | 57 | Thermo Fisher Scientific, USA |
| *MAP2* | Hs00258900\_m1 | 98 | Thermo Fisher Scientific, USA |
| *OLIG2* | Hs00377820\_m1 | 64 | Thermo Fisher Scientific, USA |
| *PLP1* | Hs00166914\_m1 | 61 | Thermo Fisher Scientific, USA |

|  |  |  |  |
| --- | --- | --- | --- |
| Supplementary Table S2. IMC Antibody Panel | | | |
| Target | Isotope tag | Clone | Company |
| CD38 | 141Pr | EPR4106 | Abcam, UK |
| ICAM1 | 142Nd | HA58 | BioLegend, USA |
| CD14 | 144Nd | EPR3653 | StandardBio, USA |
| CD64 | 146Nd | 10.1 | StandardBio, USA |
| CD163 | 147Sm | EDHu-1 | StandardBio, USA |
| Syk | 149Sm | 4D10.2 | StandardBio, USA |
| CD45 | 152Sm | D9M8I | StandardBio, USA |
| CD11c | 154Sm | Polyclonal | StandardBio, USA |
| CXCR3 | 156Gd | G025H7 | StandardBio, USA |
| CD68 | 159Tb | KP1 | StandardBio, USA |
| CD115 | 164Dy | 9-4D2-1E4 | BioLegend, USA |
| CD74 | 166Er | LN2 | StandardBio, USA |
| HLA-DR | 174Yb | YE2/36 HLK | StandardBio, USA |
| Chi3L1 | 176Yb | EPR19078-157 | Abcam, UK |
| DNA | 191Ir | - | StandardBio, USA |
| DNA | 192Ir | - | StandardBio, USA |

**Supplementary Figure Captions**

**Supplementary Figure 1**. Representative images from hematoxylin and eosin–stained and DAPI-stained sections of native and decellularized human brain tissue using 0.1% and 0.5% sodium deoxycholate (SDC) from the three different brain regions: subventricular zone (SVZ) frontal cortex (FC), and white matter (WM). Scale bar: 50μm. Note the presence of cells in the tissue decellularized with 0.1% SDC indicating unsuccessful decellularization and the absence of cells from the tissue structure of decellularized human brain tissue using 0.5% SDC indicating successful tissue decellularization of the three brain regions.

**Supplementary Figure 2.** Representative images from imaging mass cytometry staining for the 15 target markers across all three brain regions. Scale bar: 210µm.