**Supplemental Information**

**Engineering Induction of Singular Neural Rosette Emergence within hPSC-derived Tissues**

Gavin T. Knight, Brady F. Lundin, Nisha Iyer, Lydia M.T. Ashton, William A. Sethares, Rebecca M. Willet, Randolph S. Ashton

Inventory of Supplemental Information

Table S1

Table S2

Table S3

Table S4

**Table S1. Comparison of human vs. machine learning classifier analysis of 300m circular neuroepithelial tissues. (**Figure 2-Source Data)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Error** | **Stdev** | **False +** | **Stdev** | **False -** | **Stdev** |
| **Polarization** |  |  |  |  |  |  |
| Human | 21.19% | 3.35% | 13.56% | 6.94% | 7.63% | 3.81% |
| Machine Learning | 14.35% |  | 7.59% |  | 6.75% |  |
| **Rosette** |  |  |  |  |  |  |
| Human | 13.05% | 2.74% | 9.15% | 4.06% | 3.90% | 1.51% |
| Machine Learning | 8.86% |  | 3.38% |  | 5.49% |  |

**Table S2. Comparison of human vs. machine learning classifier analysis of neuroepithelial tissues with variable morphologies**. **(**Figure 2-Source Data)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Error** | **Stdev** | **False +** | **Stdev** | **False -** | **Stdev** |
| **Polarization** |  |  |  |  |  |  |
| Human | 19.05% | 14.61% | 16.19% | 16.07% | 1.63% | 1.77% |
| Machine Learning | 20.27% |  | 12.16% |  | 8.11% |  |
| **Rosette** |  |  |  |  |  |  |
| Human | 9.93% | 6.96% | 9.39% | 7.40% | 0.54% | 0.75% |
| Machine Learning | 19.59% |  | 16.89% |  | 2.70% |  |

**Table S3. Primary Antibody List**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Antigen** | **Host species** | **Clone or product #** | **Dilution** | **Vendor** |
| Pax6 | Mouse | N/A | 1:200 (FC) | DSHB |
| Pax6 | Rabbit | PRB-278P | 1:500 (ICC) | Covance |
| Pax6 | Rabbit | 901301 | 1:200 (ICC) | BioLegend |
| N-cadherin | Mouse | 610920 | 1:500 (ICC) | BD Biosciences |
| Otx2 | Goat | AF1979 | 1:500 (ICC) | R&D Systems |
| βIII-tubulin/Tuj 1 | Rabbit | PRB-435P | 1:1000 (ICC) | Covance |
| Nkx6.1 | Goat | AF5857 | 1:200 (ICC) | R&D Systems |
| Olig2 | Rabbit | AB9610 | 1:200 (ICC) | Millipore |
| Phospho-Histone 3 | Rabbit | Ab10543 | 1:200 (ICC) | Abcam |
| ZO-1 | Mouse | 610967 | 1:200 (ICC) | BD Biosciences |
| Phalloidin-TRITC | NA | P1951 | 1:200 (ICC) | Sigma |

**Table S4. TaqMan Primer Set List.**

|  |  |
| --- | --- |
| **Gene** | **Life Technologies Assay ID** |
| *RPS18* | Hs01375212\_g1 |
| *HOXA2* | Hs00534579\_m1 |
| *HOXB4* | Hs00256884\_m1 |
| *HOXC6* | Hs00171690\_m1 |
| *HOXC9* | Hs00396786\_m1 |
| *HOXD10* | Hs00157974\_m1 |
| *Pax6* | Hs01088114\_m1 |
| *Otx2* | Hs00222238\_m1 |
| *FoxG1* | Hs01850784\_s1 |