

## **Interindividual Differences in Cell Type Proportions During Human Cortical Neurogenesis**

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Cortical neurogenesis occurs during prenatal brain development and leads to the production of all of the excitatory neurons of the cortex. Neurogenesis may be affected by common genetic variation in the human population, leading to genetically mediated alterations in brain structure and function. Using an *in vitro* model of cortical development with samples obtained during neurogenesis, we analyzed interindividual differences between 40 donors for immunolabeled proportions of progenitors, proliferating progenitors, and neurons. We found a smaller degree of variation within technical replicates of a donor as opposed to between random donors, indicating that this phenotype can be reproducibly measured. After controlling for some technical and biological variables, we found that percentages of progenitors and proliferating progenitors, as well as the total number of nuclei, showed a significant positive association with gestation week. We also saw a significant positive correlation between multiple combinations of cell types, which was consistent with our expectations regarding the fluctuation of progenitor and neuron numbers during neurogenesis. Our results demonstrate that the *in vitro* culture system represents a reproducible, biologically valid system for performing genetic association studies to further investigate the relationship between common genetic variation and cellular phenotypes during neurogenesis.