**Title: Dynamics and significance of neurogenesis beyond birth in the rodent cerebral cortex**

Neurogenesis has been shown to take place in three areas of the postnatal/adult rodent brain, namely, the hippocampus, lateral ventricular walls’ subventricular zone, and in the floor of the hypothalamus. However, there is an increasing appreciation that neurogenesis may be more widespread, to include areas such as the amygdala and cerebral cortex. By comparison to other neurogenic areas of the brain, these areas are under-studied and we know very little about the identity of their stem/progenitor cells, the dynamics of neurogenesis and its purpose.

We have recently found a discrete population of neural progenitors cells, demarcated by their expression of FGF, scattered within the postnatal mouse cerebral cortex. When followed in time and space in vivo, these generate clones of new neurons (see picture) across multiple cortical laminae.

In this project, the student will investigate what is special about these progenitors. Ie. Do they reside in particular niches, associated with particular brain cells or structures? The student will also measure their capacity to generate new neurons and test whether and when might this ability wade with increasing age. To understand their importance, the student will genetically ablate FGF in these cells and monitor the impact of this knockdown on neurogenesis.

Collectively, these studies will tell us more about the levels of neurogenesis in the postnatal cerebral cortex and will lay the foundations for future experiments (such as injury models) to test their relevance and contribution to brain function and repair.

