

The Adult Neurogenesis Map

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The hippocampus is a key brain structure for learning and memory. It not only processes input from the environment, but also fundamentally influences behaviour. This means that the neural network in the hippocampus is a core part of an information loop connecting environmental stimulus and response. It is particularly intriguing that this special brain region is also home to a population of neural stem cells which allow the environmentally-regulated creation of new neurons, throughout the life of the organism, that add an extra level of flexibility to hippocampal performance. We have previously shown that the regulation of the stem cell pool and the generation of new neurons are under complex genetic control. We also maintain a structured database of all genes reported to affect adult hippocampal neurogenesis in some way. We now aim to extend this effort to encompass behavioural phenotypes and environmental stimuli. The resulting information is being organised into a structured map to enable interactive browsing and complex searching of the knowledgebase, as well as to provide a platform for predictive modelling. We present here a working draft of the Adult Neurogenesis Map and look forward to community feedback as the project expands.