

Adult neurogenesis modulates novelty exploration

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The extent to which adult born neurons in the dentate gyrus are involved and necessary for cognitive and affective behaviour remains controversial. This is largely due to the difficulty in evaluating whether behavioural differences are mediated by or merely correlate with adult neurogenesis. More refined experimental and statistical designs can improve our understanding of the adult neurogenesis-behaviour relationship. To this end, we present a high power unbiased assessment of the relationship between a large number of behavioural variables and the neurogenesis markers doublecortin and Ki67 in mice of two strains at two ages. Using several steps to eliminate false positive results, the majority of behavioural variables show no association with neurogenesis. Notable exceptions are variables measuring different aspects of exploration measured during the time the animals were introduced into the IntelliCage. On these variables adult neurogenesis has a modulating effect, resulting in slower exploration of a novel environment with higher neurogenesis.