

## **Young neurons hit the brake: cautious phenotype is associated with high hippocampal neurogenesis**

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In C57Bl6 and DBA, we have shown that adult born neurons in the hippocampus do not correlate with a specific behaviour/learning parameter; rather, young neurons are associated with the animals' general behavioural response to a novel environment. Surprisingly, more neurons were associated with a more cautious, deliberate phenotype. The balance between risk taking and risk avoiding in novel surroundings is essential in wild rodents. Exploration might provide an advantage for successful reproduction, but could also be lethal. We thus tested wild rodents for their behavioural response in the first 8 hours after introducing them into the IntelliCage. Adult hippocampal neurogenesis was assessed in extracted hippocampi along the septo-temporal long axis of the structure. We found marked species differences in the peak distribution of young neurons. Behavioural analysis over 5 species (n=84) confirms that high numbers of young neurons correlate with a more 'cautious', slower exploration. Our findings of a shared mechanism in laboratory and wild rodents are strong evidence for a functional impact of young neurons on novelty detection and the generation of an adequate behavioural response.