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Discovery of cell linked to learning and memory

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Queensland Brain Institute (QBI) neuroscientists at The University of Queensland have discovered a fundamental component of the process that regulates memory formation.

QBI Director Professor Perry Bartlett said the discovery explains, for the first time, how new nerve cells form in an area of the brain associated with learning and memory – which is known to deteriorate in people with stroke and dementia.

“The hippocampus is the region of the brain involved in important brain functions such as learning and memory and loss of neuronal production in the hippocampus is associated with a range of neurodegenerative conditions, and is particularly evident in ageing dementia.” Professor Bartlett said.

“Surprisingly, however, studies have so far failed to identify a resident stem cell population in the hippocampus that’s capable of providing the renewable source of these essential nerve cells.”

Research by Professor Bartlett and his QBI colleague Dr Tara Walker – which features on this week’s front cover of the Journal of Neuroscience (May 14) – has identified the resident stem cell in the hippocampus and, even more importantly, has discovered how it can be activated to produce new neurons.

According to Dr Walker, an understanding of the activation process

should enable the development of therapeutics that can stimulate the production of new neurons and reverse or prevent the cognitive decline that occurs during ageing dementia.

“These significant advances in determining the molecular regulation of nerve production will also have a major impact on our understanding of more complex areas such as behaviour, cognition, neurological disease and mental illness,” she said.

Source: Research Australia

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