

New learning and memory neurons uncovered

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A University of Queensland study has identified precisely when new neurons become important for learning.

Lead researcher Dr Jana Vukovic from UQ's [Queensland Brain Institute](#) (QBI) said the study highlighted the importance of new neuron development.

"New neurons are continually produced in the brain, passing through a number of developmental stages before becoming fully mature," Dr Vukovic said.

"Using a genetic technique to delete immature neurons in animal models, we found they had great difficulty learning a new spatial task.

"There are ways to encourage the production of new neurons – including physical exercise – to improve learning.

"The new neurons appear particularly important for the brain to detect subtle but critical differences in the environment that can impact on the individual."

The study, performed in QBI Director Professor Perry Bartlett's laboratory, also demonstrates that immature neurons, born in a region of the brain known as the hippocampus, are required for learning but not for the retrieval of past memories.

"On the other hand, if the animals needed to remember a task they had already mastered in the past, before these immature neurons were deleted, their ability to perform the task was the same – so, they've remembered the task they learned earlier," Dr Vukovic said.

This research allows for better understanding of the processes underlying learning and memory formation.

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The paper, "Immature double cortin-positive hippocampal neurons are important for learning but not for remembering", is online in the [Journal of Neuroscience](#).

About the Queensland Brain Institute:

The Queensland Brain Institute (QBI) was established as a research institute of the University of Queensland in 2003. The institute is now operating out of a new \$63 million state-of-the-art facility and houses 33 principal investigators with strong international reputations. QBI is one of the largest neuroscience institutes in the world dedicated to understanding the mechanisms underlying brain function.

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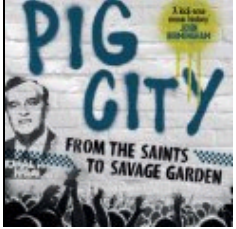
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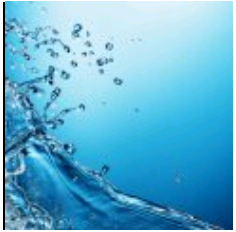
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