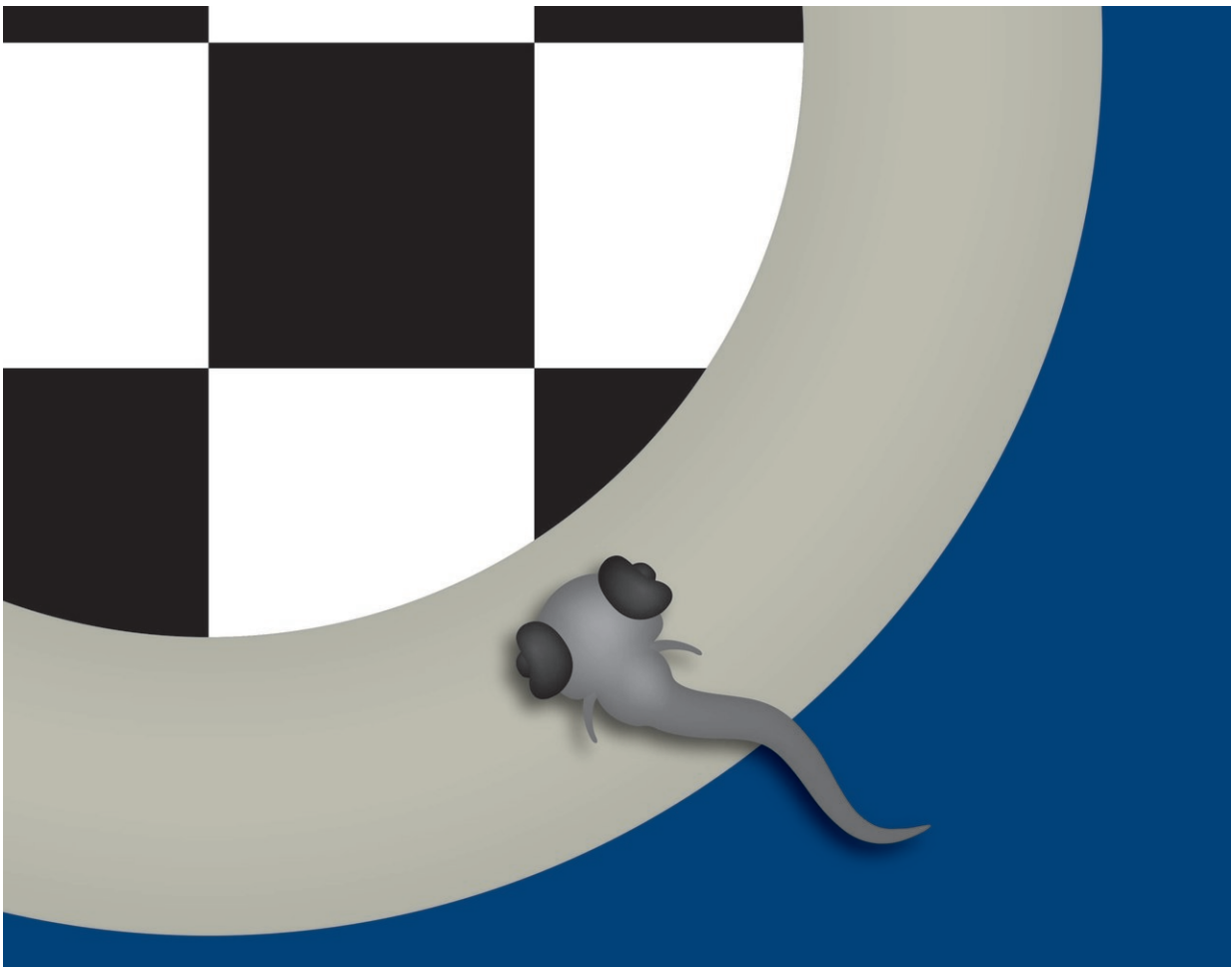


Study finds new brain pathway for escaping predators

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Zebrafish swimming towards visual threat -- represented by checkerboard.
Credit: The University of Queensland

How the zebrafish brain perceives and reacts to predators has been determined by researchers at the University of Queensland.

School of Biomedical Sciences Associate Professor Ethan Scott said the processing of visual threats by the [brain](#) represented a really interesting puzzle in neuroscience.

"Animals ranging from insects to humans will try to escape physically in response to a visual threat," Dr. Scott said.

"But we don't know how the brain recognises that the stimulus is threatening or decides to escape.

"Because zebrafish larvae are small and transparent, we examined activity across the entire brain using microscopes while visual threats were presented.

"This gave us a window into the brain's responses."

Queensland Brain Institute postdoctoral fellow Dr. Lucy Heap completed the study while undertaking a Ph.D. at the Faculty of Medicine.

She said the study involved showing [zebrafish](#) a large threatening shape moving towards them.

"We found that visual information received from the eyes was broken down into components, such as shapes and brightness," Dr. Heap said.

"These components then needed to be processed separately by two different parts of the brain for the fish to respond appropriately.

"When a visual threat appeared, cells in a particular part of the brain, the thalamus, lit up.

"But if we interfered with activity in the thalamus, the fish failed to recognise the [threat](#) and did not swim away.

"These results help to complete our picture of how different sensory information travels through the brain, and how the brain represents the outside world.

"Because these functions are abnormal in patients with certain psychiatric disorders, including [autism spectrum disorder](#) and schizophrenia, this work sets the stage for deeper studies into the disorders' basic mechanisms."

The study is published in *Neuron*.

More information: *Neuron* (2018). [DOI: 10.1016/j.neuron.2018.06.013](#)

Provided by University of Queensland

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