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Scientists film fish's thoughts for the first time

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Tags: zebrafish | thought process | Saitama University | Japan's National Institute of Genetics | fish | filmed

TOKYO: Scientists have for the first time **filmed** a thought 'swimming' through the brain of a living fish as it attacked its prey.

The technology may aid better understanding of thought process of animals and humans and even development of new psychiatric medications, researchers said.

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"Our work is the first to show brain activities in real time in an intact animal during that animal's natural behaviour," said Koichi Kawakami of Japan's National Institute of Genetics.

The technical breakthrough included the development of a very sensitive fluorescent probe to detect neuronal activity.

Kawakami, along with Junichi Nakai of Saitama University and their colleagues, also devised a genetic method for inserting that probe right into the neurons of interest.

The two-part approach allowed the researchers to detect neuronal activity at single-cell resolution in the zebrafish brain.

Akira Muto, the study's lead author from the Kawakami lab, used the new tool to map what happens when a zebrafish sees something good to eat, in this case a swimming paramecium. The researchers were also able to correlate brain activity with that prey's capture.

The new tool now makes it possible to ask which brain circuits are involved in complex behaviours, from perception to movement to decision making, the researchers said, noting that the basic design and function of a zebrafish brain is very much like our own.

"In the future, we can interpret an animal's behaviour, including learning and memory, fear, joy, or anger, based on the activity of particular combinations of neurons," Kawakami said in a statement.

By monitoring neuronal activity in the zebrafish brain, Kawakami believes that researchers may also be able to screen chemicals that affect neuronal activity in the brain.

"This has the potential to shorten the long processes for the development of new psychiatric medications," he said.

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