

Neuropeptide controls roundworms' backward movement

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A study of genetically diverse worms finds that the length of their backward movement is under the control of a small protein called a neuropeptide that fluctuates in response to food availability. The research, published in *JNeurosci*, demonstrates genetic and environmental influences on an animal's exploration of its environment.

The roundworm *Caenorhabditis elegans* moves forward and backward in the shape of a sine wave. A longer backward movement, or reversal, increases the likelihood that the worm will change directions to navigate, for example, toward a food source. How the *C. elegans* nervous system regulates reversal length has been elusive.

Kavita Babu and colleagues examined strains of *C. elegans* that differed in their expression of the neuropeptide FLP-18 and its receptors, NPR-4 and NPR-1, and found that this neuropeptide controls reversal length by regulating a circuit that involves [sensory neurons](#) and interneurons. Starving the worms for 24 hours increased levels of FLP-18 and resulted in shorter reversal lengths, reducing the probability that they would change direction. This may represent a strategy that enables the worm to explore a larger area for food during periods of extreme hunger.

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Provided by Society for Neuroscience

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