

# Researchers discover new type of nerve cell in the retina

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Scientists at the John A. Moran Eye Center at the University of Utah have discovered a new type of nerve cell, or neuron, in the retina.

In the central nervous system, a complex circuitry of neurons communicate with each other to relay sensory and motor information; so-called interneurons serve as intermediaries in the chain of

communication. Publishing in the *Proceedings of the National Academy of Sciences* of the United States of America, a research team led by Ning Tian, Ph.D., identifies a previously unknown type of interneuron in the mammalian [retina](#).

The discovery marks a notable development for the field as scientists work toward a better understanding of the central nervous system by identifying all classes of neurons and their connections.

"Based on its morphology, physiology, and genetic properties, this cell doesn't fit into the five classes of retinal [neurons](#) first identified more than 100 years ago," said Tian. "We propose they might belong to a new retinal neuron class by themselves."

The research team named their discovery the Campana cell after its shape, which resembles a hand bell. Campana cells relay visual signals from both types of light-sensing rod and cone [photoreceptors](#) in the retina, but their precise purpose is the subject of ongoing research. Experiments showed Campana cells remain activated for an unusually long time—as long as 30 seconds—in response to a 10 millisecond light flash stimulation.

"In the brain, persistent firing cells are believed to be involved in memory and learning," said Tian. "Since Campana cells have a similar behavior, we theorize they could play a role in prompting a temporal '[memory](#)' of a recent stimulation."

The published research study is titled "An uncommon neuronal class conveys [visual signals](#) from rods and cones to retinal ganglion cells." Authors are Brent K. Young, Charu Ramakrishnan, Tushar Ganjawala, Ping Wang, Karl Deisseroth, and Ning Tian.

**More information:** Brent K. Young et al, An uncommon neuronal

class conveys visual signals from rods and cones to retinal ganglion cells, *Proceedings of the National Academy of Sciences* (2021). DOI: [10.1073/pnas.2104884118](https://doi.org/10.1073/pnas.2104884118)

Provided by University of Utah

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