

# Researchers make exciting discoveries in non-excitable cells

October 17 2013, by Bill Hathaway

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It has been 60 years since scientists discovered that sodium channels create the electrical impulses crucial to the function of nerve, brain, and heart cells—all of which are termed "excitable." Now researchers at Yale and elsewhere are discovering that sodium channels also play key roles in so-called non-excitable cells.

In the Oct. 16 issue of the journal *Neuron*, Yale neuroscientists Stephen Waxman and Joel Black review nearly a quarter-century of research that shows sodium channels in cells that do not transmit [electrical impulses](#) may nonetheless play a role in immune system function, migration of cells, neurodegenerative disease, and cancer.

"This insight has opened up new avenues of research in a variety of pathologies," Waxman said.

For instance, Waxman's lab has begun to study the functional role of voltage-gated sodium channels in non-excitable glial cells within the spinal cord and brain. They are currently investigating whether [sodium channels](#) in these non-excitable cells may participate in the formation of glial scars, thereby inhibiting regeneration of nerve [cells](#) after traumatic injury to the spinal cord or brain.

## **More information:**

[www.cell.com/neuron/abstract/S0896-6273\(13\)00810-6](http://www.cell.com/neuron/abstract/S0896-6273(13)00810-6)

Provided by Yale University

Citation: Researchers make exciting discoveries in non-excitable cells (2013, October 17)  
retrieved 19 April 2024 from

<https://medicalxpress.com/news/2013-10-discoveries-non-excitable-cells.html>

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