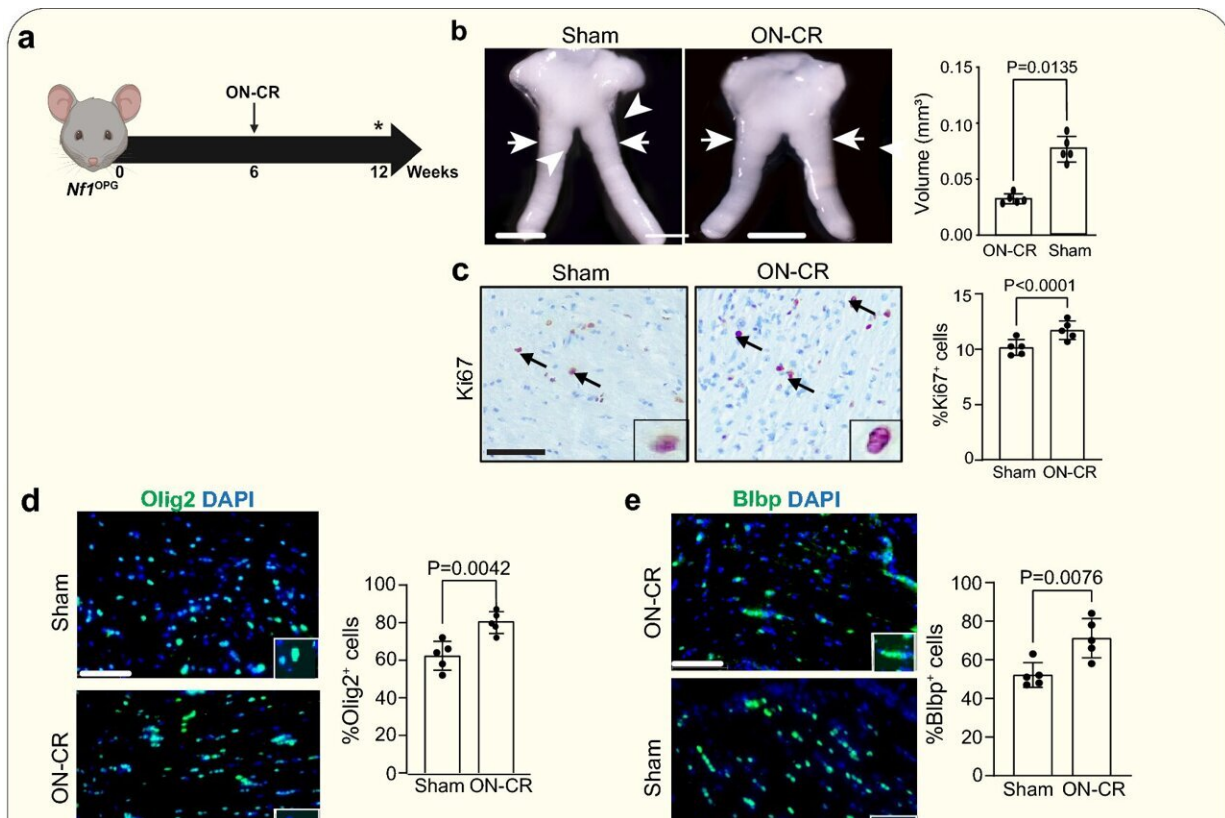


Some brain tumors may be linked to head injury, mouse study suggests

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a $Nf1^{OPG}$ mice undergo optic nerve crush (ON-CR) at 6 weeks of age, while optic nerves are analyzed at 12 weeks of age. $Nf1^{OPG}$ mice following ON-CR have increased **b** optic nerve volumes and exhibit increased **c** proliferation, **d** %Olig2⁺ cells and **e** %Blbp⁺ cells **f** 12-week-old $Nf1^{f/R1809C}$; hGFAP-Cre mice following optic nerve crush at 6 weeks of age exhibit increased **g** optic nerve volumes **h** proliferation **i** %Olig2⁺ cells and **j** %Blbp⁺ cells compared to those undergoing a sham operation. Credit: *Acta Neuropathologica Communications* (2024). DOI: 10.1186/s40478-024-01735-w

A study in mice by researchers at the School of Medicine indicates that brain injury can lead to brain tumors in susceptible individuals. For this study, they used mice that model people with neurofibromatosis type 1 (NF1), a genetic disorder that causes brain tumors.

The study showed that molecules released by injured neurons set off events that create an environment primed for tumors to appear.

Senior author David H. Gutmann, MD, Ph.D., the Donald O. Schnuck Family Professor, Terrance Kummer, MD, Ph.D., an associate professor of neurology, and first author Jit Chatterjee, a senior scientist, found that injury caused existing brain tumors, called optic gliomas, in one strain of NF1 mice to grow faster.

In addition, they showed that a different strain of NF1 mice—one that does not normally develop [brain tumors](#)—formed optic gliomas after either optic nerve injury or traumatic [brain injury](#).

Importantly, this study also revealed how nerve injury creates conditions permissive for optic glioma formation and identified ways to interrupt this process.

"Injury creates environmental signals that might allow a cell that's poised to become a tumor to complete the process," Gutmann said.

The [findings](#) are available online in *Acta Neuropathologica Communications*.

More information: Jit Chatterjee et al, Brain injury drives optic glioma formation through neuron-glia signaling, *Acta Neuropathologica Communications* (2024). [DOI: 10.1186/s40478-024-01735-w](https://doi.org/10.1186/s40478-024-01735-w)

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