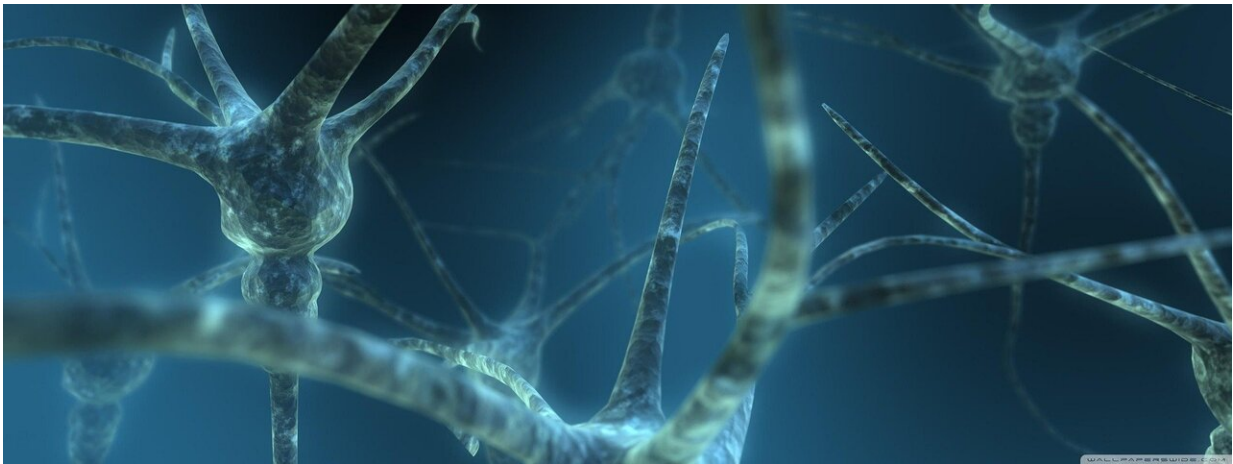


# Two new types of glial cells found in mouse brain

June 11 2021, by Bob Yirka

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A team of researchers with members from the University of Basel, Columbia University, New York University and the University of Illinois at Chicago, has discovered two new kinds of glial cells after prodding neural stem cells to wake from dormancy. In their paper published in the journal *Science*, the group describes their study of dormant stem cells in mouse brains. Katherine Baldwin and Debra Silver, with the University of North Carolina and Duke University, respectively, have published a Perspectives piece in the same journal issue outlining what is known about dormant stem cells in the brains of mammals and describe the work done by the researchers in this new effort.

As Baldwin and Silver note, [neural stem cells](#) in mammalian brains divide rapidly during development in the womb then become mostly quiescent—the largest group of them reside in two small regions known as the ventricular-subventricular zone. They exist as a bit of brain matter that hangs on the outside wall of the first and second ventricles. Prior research has shown that at times some of the dormant stem cells that reside in the zone can activate resulting in the development of mature neurons or glia (non-[neuronal cells](#) that support brain function). And as Baldwin and Silver also note, much work has been done to learn more about stem cells that activate and become neurons, while very little is known about those that become glia. In this new effort, the researchers sought to learn more about the factors involved in gliogenesis.

The work involved comparing transcriptomes in both activated and dormant stem cells in mouse brains. They found that quiescent cells had much higher levels of PDGFR $\beta$ , a [growth factor](#). They found that silencing PDGFR $\beta$  in dormant cells pushed them to awaken, and as they did so, the researchers found some of them maturing into two kinds of glial cells that had not been seen before— unusual types of glial progenitors.

Notably, humans have similar brain regions to those studied here, which suggests similar types of glial [cells](#) might be activated due to the introduction of growth factors—a possible therapy for people with certain kinds of [brain](#) injuries.

**More information:** Ana C. Delgado et al, Release of stem cells from quiescence reveals gliogenic domains in the adult mouse brain, *Science* (2021). [DOI: 10.1126/science.abg8467](https://doi.org/10.1126/science.abg8467)

Katherine T. Baldwin et al, Expanding gliogenesis, *Science* (2021). [DOI: 10.1126/science.abj1139](https://doi.org/10.1126/science.abj1139)

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