Post brain injury: New nerve cells originate from neural stem cells

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Most cells in the human brain are not nerve cells, but supporting cells (glial cells). They serve as a framework for nerve cells and play an important role in the wound reaction that occurs with injuries to the brain. However, what these ‘reactive glial cells’ in the brains of mice and men originate from, and which cells they evolve into was hitherto unknown.

Now, the study group of Prof. Dr. Magdalena Götz is able to show that after injury, these reactive glial cells in the brains of mice restart their cell division. They then become stem cells from which nerve cells can form yet again under favourable cell culture conditions.

With this came the ground-breaking proof that, in an injured region of the brain, adult neural stem cells exist that could later serve as a source of new nerve cells.

In her study group, the stem cell expert, Magdalena Götz, examines the molecular bases of cerebral development, in particular in the cerebral cortex. Götz proved in earlier investigations that glial brain cells can act as stem cells, and nerve cells emerge from glial cells. She also pointed out which factors play a role in the cross-over from glial to neural cells. “Now, thanks to these results, the distant goal of being able to use the processes therapeutically is getting a little closer” stresses Götz.

Source: German Research Center for Environmental Health