

Transplantation with induced neural stem cells improves stroke recovery in mice

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In a study to determine whether induced neural stem cells (iNSCs), a type of somatic cell directly differentiated into neural stem cells, could exert therapeutic effects when transplanted into mice modeled with ischemic stroke, researchers found that the cells promoted survival and functional recovery. Additionally, they discovered that when administered during the acute phase of stroke, iNSCs protected the brain from ischemia-related damage.

In contrast to other studies that have induced [somatic cells](#) to become [pluripotent stem cells](#) (iPSCs), which can then be differentiated into [neural cells](#), this study directly converted somatic cells into [neural stem cells](#). Researchers concluded that in addition to iNSC transplantation improving survival rate, results also demonstrated reduced infarct volume in the brain and enhanced sensorimotor function in the mice modeled with stroke.

The study will be published in a future issue of *Cell Transplantation*.

"We observed multiple therapeutic effects when using these cells to treat stroke in mice," said Dr. Koji Abe, Department of Neurology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Science. "The iNSCs did not produce any adverse responses in the animals, including tumor formation, which may suggest they are safer than regular iPSCs. Further studies are needed to confirm this cell type as a candidate for cell replacement therapy for stroke."

"Use of iNSCs may improve the efficacy of cell transplantation procedures for stroke since they are able to be derived directly from other cells without the need for extra steps," said Dr. Shinn-Zong (John) Lin, Tzu Chi Hospital, Hualien City, Taiwan. "This is highly desirable in stroke, which has a narrow window in which the brain is most responsive to treatment. Whether the therapeutic effects produced by iNSCs are attributable to cell replacement or to secreted factors (paracrine effects), this method may be promising for treating [stroke](#) early."

More information: , Novel therapeutic transplantation of induced neural stem cells for stroke, *Cell Transplantation* (2016). [DOI: 10.3727/096368916X692988](#)

Provided by Cell Transplantation Center of Excellence for Aging and Brain Repair

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