

# Stem cells reverse disease in a model of Parkinson's disease

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In a new study to be published in the *Journal of Clinical Investigation*, researchers compared the ability of cells derived from different types of human stem cell to reverse disease in a rat model of Parkinson disease and identified a stem cell population that they believe could be clinically relevant.

led by Sang-Hun Lee, at Hanyang University, Republic of Korea, and Kwang-Soo Kim, at Harvard Medical School, Belmont, - has now compared the ability of cells derived from different types of human stem cell to reverse disease in a [rat model](#) of Parkinson disease and identified a stem [cell population](#) that they believe could be clinically relevant.

Parkinson disease results from the progressive loss of a specific subpopulation of nerve cells. Current treatments provide only relief from the symptoms of the disease and cannot reverse the nerve cell loss. Stem cells are considered by many to be promising candidate sources of cells to reverse nerve cell loss in individuals with Parkinson disease through their ability to regenerate and repair diseased tissues. There are two types of stem cell considered in this context: embryonic stem (ES) cells, which are derived from early embryos; and induced pluripotent stem (iPS) cells, which are derived by reprogramming cells of the body such that they have the ability to generate any cell type.

In turn, cells of the body can be reprogrammed to become iPS cells in one of two ways: the reprogramming proteins can be transferred directly into the cells (protein-based iPS cells) or viruses can be used to deliver to the cells the genetic information necessary for producing the reprogramming proteins (virus-based iPS cell). Lee, Kim, and colleagues found several problems with cells derived from virus-based human iPS cells that precluded their use in the Parkinson disease model but found that nerve cells derived

from protein-based human iPS cells reversed disease when transplanted into the brain of rats modeling Parkinson disease. They therefore conclude that protein-based human iPS [cells](#) could be used in the treatment of individuals with Parkinson disease.

**More information:** [www.jci.org/articles/view/4579...972c7c1fb96f33f1d948](http://www.jci.org/articles/view/4579...972c7c1fb96f33f1d948)

Provided by Journal of Clinical Investigation

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