

Stem cell-derived dopaminergic neurons rescue motor defects in Parkinsonian monkeys

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Parkinson's disease is a degenerative disorder of the central nervous system that is characterized by tremors, rigidity, slowness of movement, and difficulty walking. It is caused by loss of the neurons that produce the neurotransmitter dopamine (known as dopaminergic neurons). One of the primary goals in Parkinson's disease research is to develop a replacement for dopaminergic neurons.

In this issue of the [Journal of Clinical Investigation](#), researchers led by Takuya Hayashi at the RIKEN Center for Molecular Imaging Science in Kobe, Japan, derived dopaminergic neurons from bone marrow [stem cells](#) in monkeys.

The cells were retrieved during a standard bone marrow aspiration and then treated with growth factors that directed the stem cells to become dopaminergic neurons.

The monkeys that donated the stem cells were treated with a chemical to induce Parkinson's disease and then received a transplant of the new dopaminergic neurons that had been derived from their own bone marrow stem cells. Monkeys that received the transplant showed significant improvement in motor defects.

This study demonstrates that dopaminergic neurons derived from adult bone marrow stem cells can be safely used to improve motor function in Parkinson's disease in monkeys.

More information: Autologous mesenchymal stem cell-derived dopaminergic neurons function in parkinsonian macaques, *Journal of Clinical Investigation*, 2012.

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