

# Human Pluripotent Stem Cell (hPSC) Therapy Will Offer New Hope for Parkinson's Disease Patients

*Learn how using hPSC to replace the damaged neural networks in the brains of Parkinson's patients can reduce the symptoms of the disease.*

AUSTIN, TEXAS, UNITED STATES, October 2, 2023 /EINPresswire.com/ -- Parkinson's Disease (PD) was first described in 1817 by the English doctor James Parkinson in his work *An Essay on the Shaking Palsy*. Among lay people, Parkinson's is associated with obvious neurological symptoms affecting motor functions, such as shaking hands (palsy tremors) or an unsteady, trembling gait when attempting to walk. The disease can also have non-motor system symptoms, including emotional disorders (from depression to obsessive/compulsive behaviors) as well as progressively slower cognitive function – potentially leading to eventual disabling dementia.



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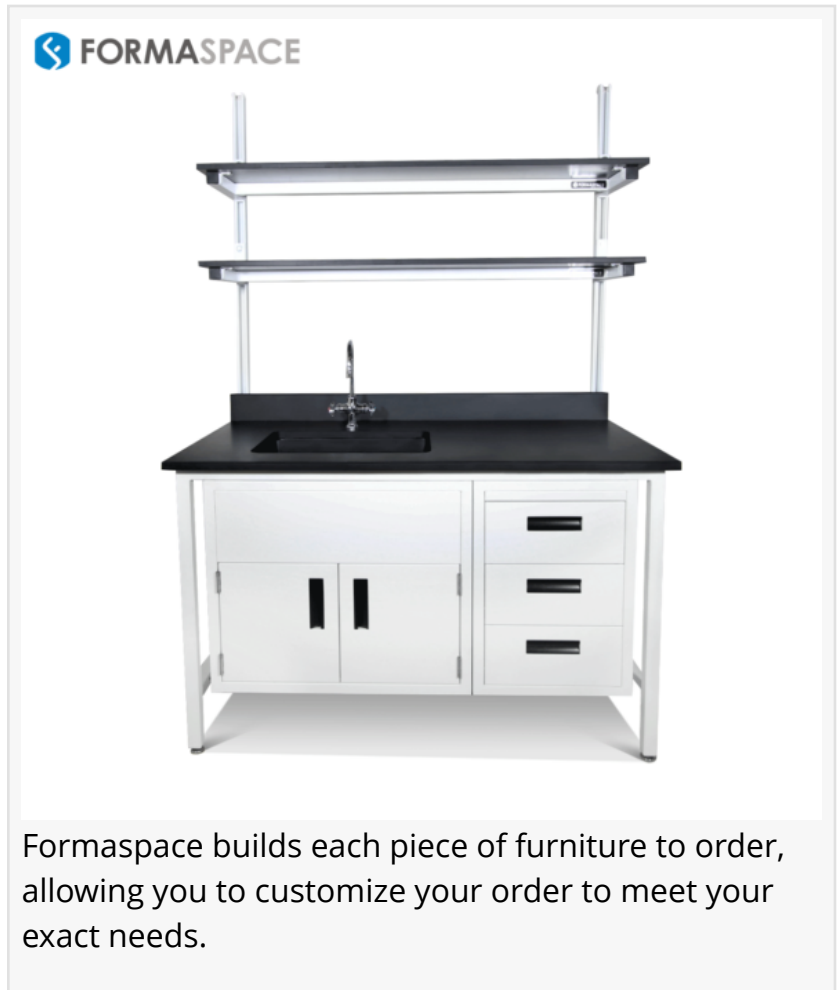
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The exact cause (or causes) of Parkinson's is not well understood, but what we do know is that it is a neurodegenerative disease associated with the progressive loss of nerve cells in the mid-brain area (substantia nigra), which, in a healthy brain, would be the source of dopamine supplied to the basal ganglia, another core area in the center of the brain that regulates behavioral control and movement.

Traditional Treatments For Parkinson's Disease Can Be Effective For A Time, But Can Also Result In Debilitating Dyskinesia

Since the late 1960s, the traditional clinical treatment for Parkinson's was to administer L-DOPA (also known as levodopa or l-3,4-dihydroxyphenylalanine) because, unlike dopamine, it can cross the blood-brain barrier, where it is converted into dopamine by cells in the peripheral nervous system.

It is understood that this artificial supply of dopamine (which replaces the natural supplies of dopamine that are no longer produced by the brain cells affected by Parkinson's) is the reason that Parkinson's patients have improved symptoms for a period after treatment. (The measure of their improvement is tallied on a so-called Hauser diary in which patients document how many hours they are affected by symptoms each day.)



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Unfortunately, the effectiveness of the L-DOPA clinical therapy can wear off after several years, causing many patients to experience a reversion to even worse trembling symptoms (known as Dyskinesia) than those experienced before commencing L-DOPA therapy.

[In 2016, researchers at the University of Alabama discovered](#) a possible reason for this setback. They found that L-DOPA was responsible for making changes to human DNA in the nerve cells in the striatum part of the brain through methylation, a natural process that signals to DNA that they should alter their gene activity. Over time, these changes rendered L-DOPA ineffective, leading to disabling Dyskinesia symptoms.

Promising Results From Early Testing Of BlueRock Therapeutics' Bemdaneprocel Therapy For Parkinson's Disease

Given the dangerous side effects of long-term L-DOPA clinical therapy for Parkinson's patients, researchers have been looking for alternatives.

On this front, there has been some good news.

The well-funded biotech startup BlueRock Therapeutics recently announced that it had positive results for its new Bemdaneprocel Therapy for Parkinson's Disease during an early-stage, year-

long trial involving 12 patients.

Patients undergoing the experimental therapy reported that their Hauser diary records showed those on the high dose of Bemdaneprocel had an average of 2.2 fewer hours with symptoms compared to their normal baseline, and those on the lower dose had an improvement of 0.7 hours.

Importantly, the study did not find any safety concerns or significant side effects.

Analysts welcomed the news but cautioned that the clinical threshold for recommending a therapy would be a 1-hour improvement (making the higher dose the only clinically significant result). They also pointed out that since this was not a double-blind study, patients may have reported fewer symptoms due to a placebo effect.

How Does The New Bemdaneprocel Therapy For Parkinson's Disease Work?

How does this new clinical therapy work?

Bemdaneprocel (BRT-DA01) is a new generation of cell therapy that uses human stem cells to create new dopamine-producing neuron precursor cells in the [laboratory](#).

These new neuron precursor cells are then implanted in the patient's brain where (it is hoped) they will repair or replace the network of dopamine-producing nerve cells that had been previously damaged by Parkinson's Disease.

Bayer Made Major Investments In Startup BlueRock Therapeutics And Its Human Pluripotent Stem Cell (HPSCs) Platform

Bayer has been investigating the idea of creating a clinical therapy platform based on using Human Pluripotent Stem Cells (hPSCs) for several years.

The company helped fund the BlueRock Therapeutics startup through a partnership with Versant Ventures, which provided a \$225 million series A round in 2016. In 2019, Bayer bought the company for \$240 million.

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