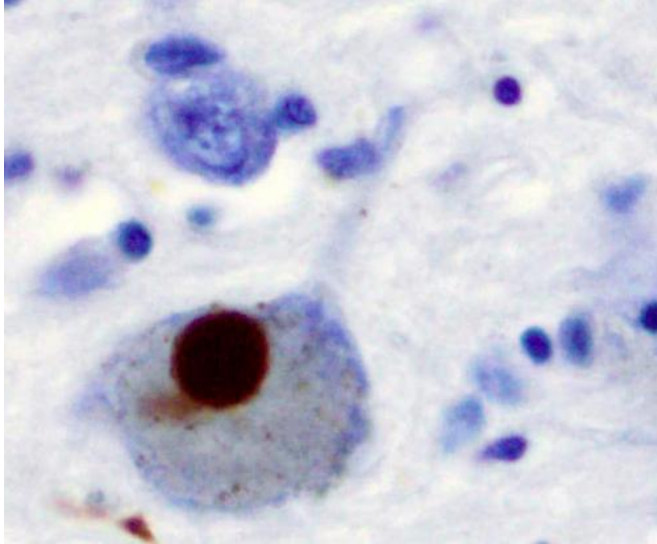


Molecule offers hope for halting Parkinson's

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Immunohistochemistry for alpha-synuclein showing positive staining (brown) of an intraneuronal Lewy-body in the Substantia nigra in Parkinson's disease. Credit: Wikipedia

A promising molecule has offered hope for a new treatment that could stop or slow Parkinson's, something no treatment can currently do.

Researchers from the University of Helsinki found that molecule BT13 has the potential to both boost levels of dopamine, the chemical that is lost in Parkinson's, as well as protect the dopamine-producing [brain](#) cells from dying.

The results from the study, co-funded by Parkinson's UK and published online today in the journal *Movement Disorders*, showed an increase in dopamine levels in the brains of mice following the injection of the molecule. BT13 also activated a specific receptor in the mouse brains to protect the cells.

Typically, by the time people are diagnosed with Parkinson's, they have already lost 70-80 per cent of their dopamine-producing cells, which are

involved in coordinating movement.

While current treatments mask the symptoms, there is nothing that can slow down its progression or prevent more [brain cells](#) from being lost, and as dopamine levels continue to fall, symptoms get worse and new symptoms can appear.

Researchers are now working on improving the properties of BT13 to make it more effective as a potential treatment which, if successful, could benefit the 145,000 people living with Parkinson's in the UK.

The study builds on previous research on another molecule that targets the same receptors in the brain, glial cell line-derived neurotrophic factor (GDNF), an experimental treatment for Parkinson's which was the subject of a BBC documentary in February 2019. While the results were not clear cut, GDNF has shown promise to restore damaged [cells](#) in Parkinson's.

However, the GDNF protein requires complex surgery to deliver the treatment to the brain because it's a large molecule that cannot cross the [blood-brain barrier](#)—a protective barrier that prevents some drugs from getting into the brain.

BT13, a smaller molecule, is able to cross the blood-brain barrier—and therefore could be more easily administered as a treatment, if shown to be beneficial in further clinical trials.

Professor David Dexter, Deputy Director of Research at Parkinson's UK, said:

"People with Parkinson's desperately need a new treatment that can stop the condition in its tracks, instead of just masking the symptoms.

"One of the biggest challenges for Parkinson's research is how to get drugs past the blood-brain barrier, so the exciting discovery of BT13 has opened up a new avenue for research to explore, and the molecule holds great promise as a way to

slow or stop Parkinson's.

"More research is needed to turn BT13 into a treatment to be tested in clinical trials, to see if it really could transform the lives of people living with Parkinson's."

Dr. Yulia Sidorova, lead researcher on the study, said: "We are constantly working on improving the effectiveness of BT13. We are now testing a series of similar BT13 compounds, which were predicted by a computer program to have even better characteristics.

"Our ultimate goal is to progress these compounds to clinical trials in a few coming years."

More information: Arun Kumar Mahato et al, Glial cell line–derived neurotrophic factor receptor Rearranged during transfection agonist supports dopamine neurons in Vitro and enhances dopamine release In Vivo, *Movement Disorders* (2019). [DOI: 10.1002/mds.27943](https://doi.org/10.1002/mds.27943)

Provided by Parkinson's UK

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