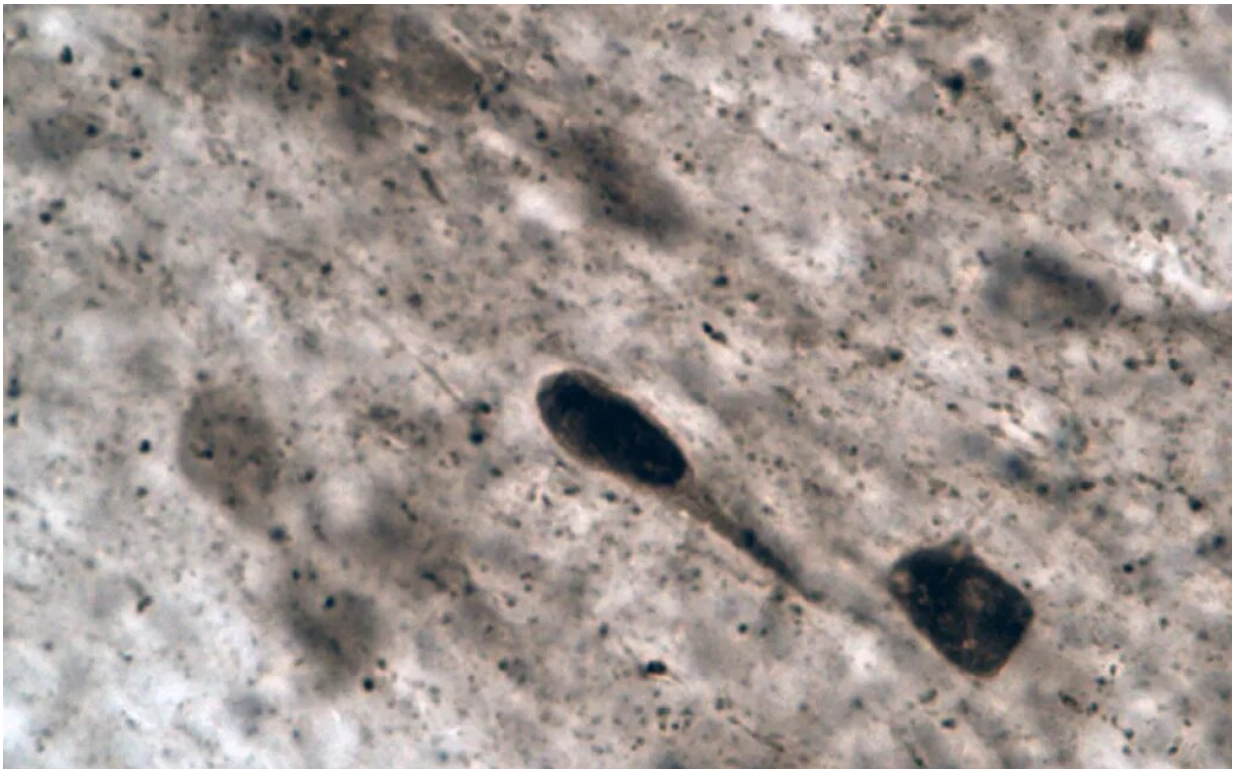


Researchers discover a potential cause of Parkinson's disease

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Aggregation of alpha-synuclein in a nerve cell. Credit: Timo Myöhänen research group

There are currently 8 million patients with Parkinson's disease in the world.

In 2021, Professor Per Saris's group [published results](#) demonstrating that bacteria of the *Desulfovibrio* bacterial genus correlate with Parkinson's disease, and that their higher number also correlates with the severity of the symptoms of the disease. Replicating the same study, Chinese researchers [came to the same conclusion](#).

"Our findings are significant, as the cause of Parkinson's disease has gone unknown despite attempts to identify it throughout the last two centuries. The findings indicate that specific strains of *Desulfovibrio* bacteria are likely to cause Parkinson's disease. The disease is primarily caused by [environmental factors](#), that is, environmental exposure to the *Desulfovibrio* [bacterial strains](#) that cause Parkinson's disease. Only a small share, or roughly 10%, of Parkinson's disease is caused by individual genes," says Professor Per Saris from the University of Helsinki.

The goal of Professor Saris's research group was to experimentally investigate whether the *Desulfovibrio* strains found in patients can result in progress towards Parkinson's disease.

The principal finding of the group's most recently study, published May 1 in *Frontiers in Cellular and Infection Microbiology*, was that these strains in patients with Parkinson's disease cause aggregation of the α -synuclein protein on a statistically significant level in a [model organism](#) for Parkinson's disease. The worm *Caenorhabditis elegans* was used as the model organism.

The study also found that *Desulfovibrio* strains isolated from healthy individuals do not cause α -synuclein aggregation to the same degree. In contrast, the [aggregates](#) caused by the *Desulfovibrio* strains in patients with Parkinson's diseases were also larger.

"Our findings make it possible to screen for the carriers of these harmful

Desulfovibrio bacteria. Consequently, they can be targeted by measures to remove these strains from the gut, potentially alleviating and slowing the symptoms of patients with Parkinson's disease. Once the Desulfovibrio bacteria are eliminated from the gut, α -synuclein aggregates are no longer formed in intestinal cells, from which they travel towards the brain via the [vagus nerve](#) like prion proteins," Saris says.

More information: Vy A. Huynh et al, Desulfovibrio bacteria enhance alpha-synuclein aggregation in a Caenorhabditis elegans model of Parkinson's disease, *Frontiers in Cellular and Infection Microbiology* (2023). [DOI: 10.3389/fcimb.2023.1181315](https://doi.org/10.3389/fcimb.2023.1181315)

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