

New Parkinson's disease therapeutics discovered

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

Ben-Gurion University of the Negev researchers have discovered that

the protein BMP5/7 offers promising therapeutics that could slow down or halt the progression of Parkinson's disease. The findings were published in the clinical neurology journal *Brain*.

Parkinson's disease, which affects over 1 million people in the U.S. and 10 million worldwide, causes tremors and severe movement impairment due to progressive degeneration of dopamine-producing [brain cells](#). It is believed that the protein alpha-synuclein, present in [human brains](#), misfolds and forms toxic clumps in these cells, which causes the disease.

While current Parkinson's disease therapies improve symptoms, they are not effective in advanced illness stages and, unfortunately, do not slow or cure the disease.

Dr. Claude Brodski, M.D., head of the BGU's Laboratory for Molecular Neuroscience, discovered that BMP5/7 signaling in neurons was significantly reduced in dopamine-producing brain cells, which could contribute to Parkinson's disease advancement.

"Indeed, we found that BMP5/7 treatment can, in a Parkinson's disease mouse model, efficiently prevent movement impairments caused by the accumulation of alpha-synuclein and reverse the loss of dopamine-producing [brain cells](#)," says Dr. Brodski. "These findings are very promising, since they suggest that BMP5/7 could slow or stop Parkinson's disease progression. Currently, we are focusing all our efforts on bringing our discovery closer to clinical application."

BGN Technologies, Ben-Gurion University's technology transfer company, has filed several patent applications covering this breakthrough discovery.

Dr. Galit Mazooz Perlmutter, senior vice president of business development, bio-pharma at BGN Technologies, notes, "There is a vast

need for new therapies to treat Parkinson's disease, especially in advanced stages of the disease. Dr. Brodski's findings, although still in their early stages, offer a [disease](#)-modified drug target that will address this devastating condition. We are now seeking an industry partner for further development of this patent pending invention."

More information: Zagorka Vitic et al, BMP5/7 protect dopaminergic neurons in an α -synuclein mouse model of Parkinson's disease, *Brain* (2020). [DOI: 10.1093/brain/awaa368](https://doi.org/10.1093/brain/awaa368)

Provided by American Associates, Ben-Gurion University of the Negev

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