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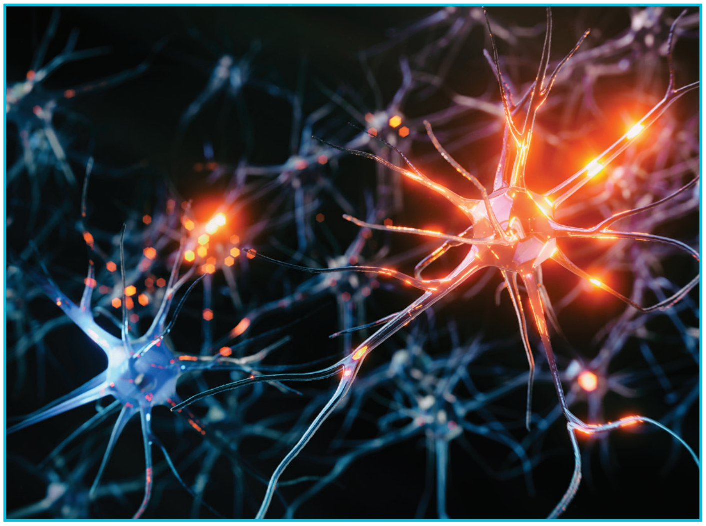
A NEWSLETTER FOR FRIENDS OF PARKINSON'S FOUNDATION

One Step Closer to Unlocking the Mysteries of Parkinson's Disease

A hallmark of Parkinson's disease (PD) is the death of brain cells called dopaminergic neurons in the substantia nigra. Among other things, this small part of the brain plays an essential role in how the brain controls body movements. New research findings related to the substantia nigra may help us better understand PD and guide the development of new treatments.

This study, led by Parkinson's Foundation 2022 Research Centers Principal Investigator Zhenyu Yue, PhD, and his team at Icahn School of Medicine at Mount Sinai, found a new type of neuron associated with PD. By studying gene expression in 315,867 cells from the substantia nigra of both people who have Parkinson's and those who do not, the scientists found a unique group of neurons.

This group of neurons possesses a different genetic marker compared to other cell types in the substantia nigra, indicating that they may be a newly recognized cell population. Within this unique group of neurons, researchers found a gene called RIT2, which past studies had shown associated with Parkinson's risk.



Knowing that there is a new population of brain neurons tied to Parkinson's will provide researchers with new targets to develop different PD medications. These neurons can also lead to the development of a new biomarker, which could be a breakthrough in PD diagnosis and progression tracking.

While this study does not directly impact people with PD right now, the PD community can find hope in knowing that research continues to bring new discoveries about this disease and how it works. Your support of the Parkinson's Foundation contributes to cutting-edge research like this, which is bringing us one step closer to beating PD.

For more information about what the Parkinson's Foundation is doing to advance PD research, visit Parkinson.org/Research

People Power: From Denial to Empowerment

In 2015, Vanessa Russell-Palmer fell from a ladder in her garage and suffered a fracture in her left leg. After two weeks in the hospital and two surgeries for her broken left knee joint, she was recuperating at her daughter's house when she noticed a tremor in her right hand. When she mentioned it to her orthopedic surgeon, he recommended they keep an eye on it since there had been a lot of damage to Vanessa's sciatic nerve with her knee injury.

The internal tremor turned into a resting tremor, so Vanessa scheduled an appointment with a neurologist. After the neurologist completed the screenings, she told Vanessa it was young-onset Parkinson's disease.

At first, her symptoms were mild, so she wasn't put on any medication. Still, with time, the non-movement symptoms (fatigue, brain fog, insomnia) became too much to handle, and Vanessa retired to relieve her stress from work, which was negatively impacting Vanessa and making her PD symptoms worse.

Fast-forward to today. Vanessa is managing her symptoms better than ever and is actively involved in a newly formed African American PD support group. This group taught her about the Parkinson's Foundation Learning Institute, which trains people with PD and care partners in research and advocacy.

In September 2023, Vanessa was in the first graduating class of the Black and African American research advocates at the Parkinson's Foundation Learning Institute. "I now feel empowered to fight this disease every day, and I have a community of support with my fellow research advocates, friends and family," Vanessa said.

As a research advocate, Vanessa is raising community awareness, especially for Black and African Americans who are less likely to be diagnosed with PD due to lack of information and access to care. She also participates in research studies including our genetics study, *PD GENEration: Mapping the Future of Parkinson's Disease*.

Thanks to the Foundation's community groups and support, Vanessa is living her best life with PD.

To learn more about how to get involved with community programs and resources, visit Parkinson.org/Resources

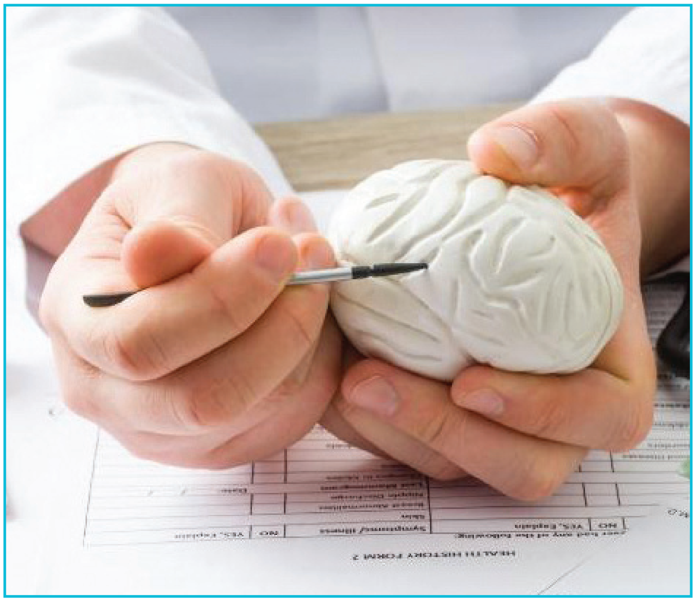
> *"Living with Parkinson's is a long and sometimes uncertain journey, but even on my challenging days, I know that I have an advocacy plan and that my efforts will make a difference in the long run — that is what keeps me going each day."*
>
> *— Vanessa Russell-Palmer*

An Early-Career Scientist is Pushing the Boundaries of Parkinson's Research

For decades, we have known that inflammatory changes occur in the brains of people with PD. Now, researchers like Catherine Weindel, PhD, are studying them as a possible cause of the progressive nature of Parkinson's disease, not just a result of it.

"I am studying how alterations or modulations in an immune response could build up over time, piece by piece, and might predispose someone to develop Parkinson's later in life," said Dr. Weindel, a 2019 Parkinson's Foundation Postdoctoral Fellowship and 2022 Parkinson's Foundation Launch Award recipient. She hopes this research will not only pave the way for a deeper understanding of how PD starts and progresses but also create avenues for potential new therapies.

When Dr. Weindel first began investigating PD early in her career, she suspected that immune system inflammation, triggered by illnesses and loss of dopamine neurons outside the brain, could ultimately lead to the development of PD. Now, she is taking her research a step further to gain a deeper understanding of how *LRRK2* gene mutations cause cell death in immune cells in the brain.



Dr. Catherine Weindel, PhD

This will lead to the identification of new targets for Parkinson's therapies that may better control inflammation. Dr. Weindel's research will also help design improved genetic tests to give families with a history of Parkinson's better insight into their risk for developing PD.

"My goal is to develop therapeutics that will allow for a more personalized medical approach," said Dr. Weindel. "Because Parkinson's is such a diverse disease, a cure-all is very unlikely. Ideally, a particular therapeutic can one day be designed for an individual based on the genetic makeup of their Parkinson's."

Your support of the Parkinson's Foundation gives researchers like Dr. Weindel the opportunity to pursue promising research early in their careers and continue to push the field of PD research forward.

To learn more about Parkinson's Foundation research, including our landmark genetics study, visit Parkinson.org/PDGENEration

Parkinson's Awareness: Moving Day Walk and Rock Steady Boxing Form National Partnership

Moving Day, the Parkinson's Foundation signature fundraising event, has a new national partner: Rock Steady Boxing. This non-profit gym brings an invaluable platform to help raise awareness for Parkinson's disease and the Foundation's Moving Day events, which celebrate the importance of movement to help manage PD symptoms.

Scott C. Newman founded Rock Steady Boxing as a non-contact, boxing-based curriculum adapted and designed to address the symptoms of PD. The exercise program helps people live more independently by providing significant physical benefits, such as improved walking and balance and decreased falls and hospitalizations. In some cases, it has also slowed disease progression.

While PD varies from person to person, studies show that regular exercise can improve PD symptoms and can improve overall quality of life. Rock Steady Boxing is a great place to start to manage PD symptoms alongside exercise.

"I'm so happy that Rock Steady Boxing will now be part of all Moving Day events across the country, particularly for those in the community who have yet to experience it," said Terri Weymouth, who was diagnosed with PD at age 55 and has been an active boxer in the program since 2009. "My diminished symptoms and great physical condition are proof that exercise is truly as important as the experts stress it is for people living with Parkinson's."

Since 2011, Moving Day events around the country have gathered more than 186,000 participants and raised $45 million to fund cutting-edge research and community programs. This year, the Parkinson's Foundation will expand its footprint by bringing exercise programs like Rock Steady to three new Moving Day event locations.

For more information on how to get involved with Moving Day in your community, please visit MovingDayWalk.org

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