

Legacy Research Institute's Initiative to Cure Parkinson's Disease

Legacy Research Institute

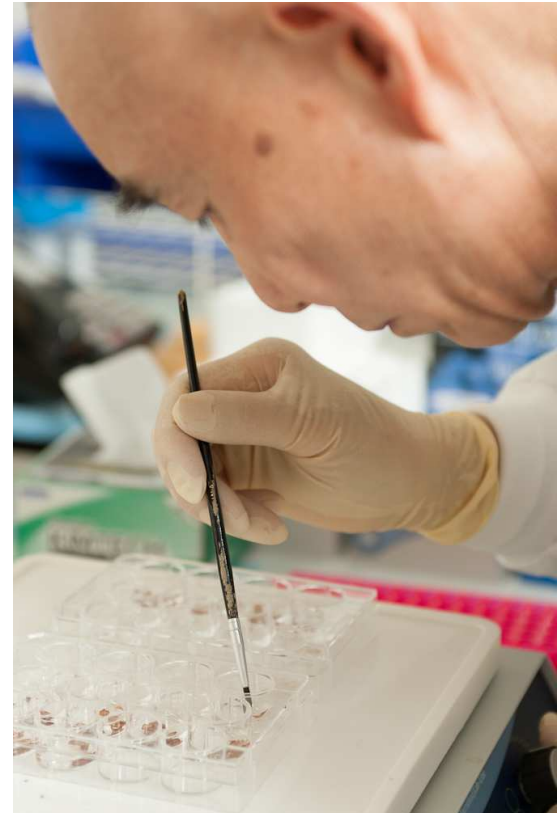
Legacy Research Institute is home to one of the world's leading research groups in neuroscience. Our teams work to understand, improve, prevent and cure neurological disorders, including Parkinson's and Alzheimer's diseases, epilepsy, stroke, traumatic brain injury and schizophrenia.

Today, Legacy Research Institute has assembled an extraordinarily talented and creative scientific team that is optimally qualified to undertake a major initiative to conquer Parkinson's disease (PD), a dreaded disorder that afflicts approximately one million Americans and tens of millions worldwide. Legacy Research Institute's expertise makes it an ideal organization to launch this initiative and give hope to countless individuals whose lives are affected by this devastating disease.

A Life-changing Disorder

Parkinson's disease is a neurodegenerative disorder of the central nervous system. PD results from the malfunction and death of brain cells that produce dopamine, a critical chemical messenger that sends information to portions of the brain controlling movement and coordination. Deprived of these cells, symptoms initially include tremor, rigidity, and difficulty with walking and gait. In addition to these motor systems, a variety of non-motor symptoms impact the quality of life for people with PD, including cognitive problems and dementia.

Parkinson's disease is chronic and progressive, meaning symptoms continue and worsen over time. Current drug treatments for PD can help control some early symptoms, but become less effective as the disease progresses, requiring higher and more frequent dosages, often leading to further side effects, such as the involuntary writhing movements of dyskinesia. PD reduces one's life expectancy by an average of three to nine years. According to the Centers for Disease Control, it is the 14th leading cause of death in the United States. For individuals affected by PD, these statistics tell only part of the story: PD inexorably erodes the quality of nearly every aspect of one's life. Furthermore, PD is extremely costly to society, both in terms of direct medical expenses and lost productivity.



A New Path

Legacy Research Institute, with initial seed funding from private donors, has launched an initiative to pursue novel, holistic approaches to identify ways to fortify the brain's own defenses against neural degeneration caused by PD. To date, most efforts to treat PD have focused on alleviating symptoms with medications. Current research includes attempts at replacing or reconstructing the degenerating neurons of the brain that directly lead to Parkinsonian symptoms. But only 10 percent of the brain is comprised of neurons, including those which produce dopamine, while the remaining 90 percent consists of the nurturing glial cells that allow those neurons to remain healthy. The dysfunction of glial cells — a hallmark of PD — remains overlooked by the current body of research. One role of glia is to control the availability of adenosine, which is the brain's own neuroprotectant molecule and is involved in the control of motor functions. **Our research suggests that glial function and the availability of adenosine are severely compromised in PD. Lack of adenosine in PD is thought to promote neuronal cell death and impair motor function. We plan to develop innovative new therapies to reconstruct adenosine function in the brain of PD patients.**

Our research aims to prevent, slow down and arrest the progress of Parkinson's disease by:

- Implementing dietary manipulations to restore adenosine function in the brain
- Developing successful gene therapies
- Developing successful stem cell-based adenosine augmentation therapies
- Integrating a combination of therapies that successfully reconstruct and maintain a healthy, neuroprotective environment in the brain.

Your Support Is Needed

The objective of these efforts is to back the basic research to prove that these novel approaches show sufficient promise and attract the attention of major private and public resources to carry out the necessary development activities.

More people are diagnosed with PD than with multiple sclerosis, muscular dystrophy and Lou Gehrig's disease combined.

Although Legacy Research Institute receives some funding through federal grants and other sources, this alone isn't sufficient to fully fund this proposed research. **Ultimately, strong philanthropic support will be essential to fund this life-changing initiative, both in this early start-up stage and during broader development within 5 years.**

Within two years and a budget of \$500,000, we would:

- Characterize adenosine dysfunction in human PD-brain samples.
- Establish and study adenosine function in transgenic mouse models of PD.
- Test the efficacy of a ketogenic diet to prevent the development of PD.
- Test the efficacy of a gene therapy to interfere with key pathogenetic processes in PD.
- Test the efficacy of stem cell therapies to reconstruct adenosine homeostasis and brain function in advanced PD.

Within five years and a budget of \$5 million, we would:

- Start clinical trials with a ketogenic diet in patients with PD.
- Develop clinical grade stem cell and gene therapy cores to prepare clinical translation of those innovative therapies.
- Recruit additional faculty to promote further growth of our PD program.

The Oregon Community Foundation Parkinson's Northwest Group has provided an initial investment of \$206,000, which has been matched by Legacy Health. We are now seeking donors to help us rewrite the prognosis of countless individuals by raising an additional \$100,000 by March 31, 2013, for the two-year project budget and \$5 million by 2017 to fill necessary research positions, acquire needed equipment and research specimens, and rebuild the consortium to defeat Parkinson's disease.



To make a gift, or to learn more about this initiative, please contact Michael Schultz, executive director with the Legacy Health Office of Philanthropy, at 503-413-7384 or mischultz@lhs.org. You can also visit www.legacyhealth.org/giving.

Thank you for your consideration of support.

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