Labs for PD

- Yulan Xiong An assistant professor of neuroscience at UConn Health who discovered a mechanism that regulates a gene associated with Parkinson's disease
- Andy Singleton A researcher at the National Institute on Aging who found that a gene variant called GBA1 increases the risk of Parkinson's disease by about 50% if someone carries one copy and by about 400% if they carry two
- Ignacio Mata A researcher at the Cleveland Clinic Lerner College of Medicine who led the first genome-wide association study (GWAS) of Latinos with Parkinson's disease in South America
- Steven Lubbe A researcher who found four genetic variants that increase the risk of Parkinson's disease by comparing short tandem repeats (STRs) in people with and without the disease
- Ekemeni Riley The managing director of Aligning Science Across Parkinson's, a research initiative that found a gene variant that can nearly quadruple the risk of Parkinson's disease for people of African ancestry

Bryan J. Traynor, M.D., Ph.D.

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About | Research Interests

Dr. Traynor is a neurologist and a senior investigator at the National Institute on Aging. He is best known for his work unraveling the genetic causes of amyotrophic lateral sclerosis (ALS) and frontotemporal dementia (FTD). He led the international consortium that identified a pathogenic hexanucleotide repeat expansion in the C9orf72 gene as a cause of a large proportion of ALS and FTD (Neuron 2011). His team also identified the same mutation in ~1% of patients clinically diagnosed with Alzheimer's disease (NEJM 2012).

Other notable achievements of his laboratory include discovering mutations in the VCP, MATR3, and KIF5A genes as causes of familial ALS (Neuron 2010, Nature Neuroscience 2014, Neuron 2018).

Dr. Traynor is the co-recipient of the 2013 Sheila Essey Award and 2016 Potamkin Prize for his discovery of the C9orf72 repeat expansion as an important cause of neurodegeneration. He also received the 2012 NIH Director's Award for his continued commitment to our understanding of ALS. He was elected Fellow of the American Neurological Association in 2012 and a fellow of the Royal College of Physicians of Ireland in 2020.

Dr. Traynor has over 200 publications in the neurology field, and he is an inventor on three issued patents

Last reviewed on May 14, 2023

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About | Research Interests | Lab Members | Publications

Neurodegeneration is an increasing and unmitigated disease burden in our aging population. Among its causes are damaged mitochondria that accumulate with age, particularly in post-mitotic neurons and myocytes. Our group studies monogenic disorders to uncover mitochondrial stress responses that curb mitochondrial damage in neurodegeneration. Our focus includes PINK1 and Parkin, which form a stress-induced mitophagy pathway that targets damaged mitochondria for degradation. Mutations in these genes are the most common recessive forms of Parkinson's disease, linking mitophagy to neurodegeneration. We are additionally focused on dominant mutations in the paralogs *CHCHD2* and *CHCHD10*, which cause Parkinson's disease, amyotrophic lateral sclerosis, frontotemporal dementia, and myopathy. In addition to enabling precision therapies for neurogenetic disorders, our work is uncovering fundamental mitochondrial stress responses to mitochondrial damage.

Last reviewed on March 28, 2024

Andrew B. Singleton, Ph.D.

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Research Topics

Dr. Andrew Singleton has published more than 700 articles on a wide variety of topics. He is the Director of the Center for Alzheimer's and Related Dementias within the Intramural Research Program, in addition to being Chief of the Molecular Genetics Section within the Laboratory of Neurogenetics. Singleton's group works on the genetic basis of neurological disorders including Parkinson's disease, Alzheimer's disease, dystonia, ataxia, dementia with Lewy bodies, and amyotrophic lateral sclerosis (ALS). His team seeks to identify genetic variability that causes or contributes to disease and to use this knowledge to understand the underlying molecular processes. Dr. Singleton's group discovered a number of genetic mutations that cause disease, including the alpha-synuclein multiplication mutation and mutations in LRRK2. Dr. Singleton was a founding member of the International Parkinson Disease Genomics Consortium, and the Global Parkinson's Genetics Program. His laboratory has identified the majority of the known genetic risk factors for Parkinson disease.

Justin M. O'Sullivan, PhD

Professor at The Liggins Institute, University of Auckland
Location: Auckland New Zealand

Justin M. O'Sullivan, PhD, is a professor and deputy director at the Liggins Institute, University of Auckland. He was awarded the 2010 Life Technologies Life Science Award for Emerging Excellence in Molecular biology in New Zealand. Dr. O'Sullivan trained as a molecular microbiologist, before completing postdoctoral research on the genetic code in Candida albicans and transcription control in Saccharomyces cerevisiae. He has developed expertise that allows him to follow structural clues to understand how the spatial organization of a genome adds to the information that is hard-coded in the linear sequence of its DNA. His focus is on interpreting how disease-associated mutations in noncoding DNA affect Parkinson's disease (PD) and other multigenic diseases. His group's approach is providing new hypotheses that connect the genetic and biological understandings of PD, and he and his colleagues are testing these hypotheses in the hope of advancing PD research towards a cure.

NEUROSCIENCE DEPARTMENT
Yulan Xiong Lab

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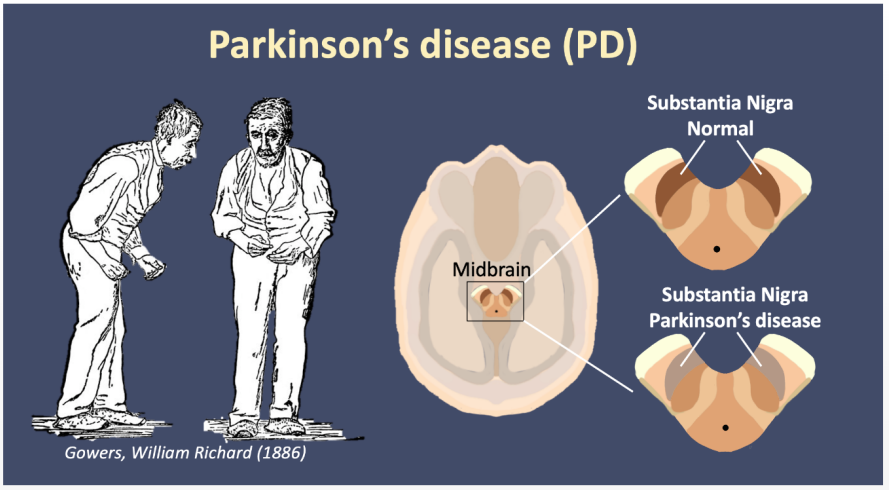
Our lab focuses on understanding the molecular mechanisms underlying neurodegenerative diseases, with a specific emphasis on Parkinson's disease (PD), the most common movement disorder.



PI

Yulan Xiong

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Profile

Dr. Yulan Xiong currently is a tenure-track Assistant Professor at the Department of Neuroscience, University of Connecticut School of Medicine (UConn Health). She obtained her PhD at Lancaster University, UK and received her postdoc training with Drs. Ted M. Dawson and Valina L. Dawson at the Johns Hopkins University School of Medicine. Prior to joining the faculty at UConn health, she was appointed as a tenure-track Assistant Professor at the Department of Neurology at the Johns Hopkins University School of Medicine and at Kansas State University thereafter. Dr. Xiong is a member of the grant committee at the Parkinson's Foundation and was the Chair of Stanley Fahn Junior Faculty Award Committee at PF (2023). She is currently serving as a standing member at NIH NOMD study section (2023-2027).