

Neuroimmune interactions in Neurodegenerative Diseases

[Abstract]

This lecture will discuss the pivotal role of microglia, the resident immune cells in the brain, as key mediators between the immune system and the central nervous system (CNS) in neurodegenerative diseases. Positioned to influence CNS inflammation, microglia are involved in both protective and toxic pathways that impact disease onset and progression. Our research has identified critical pathways in microglia, such as NF- κ B, Akt, cGAS-STING, and TLR7, and explored their role in neurodegeneration, with a focus on notable sex differences. Additionally, we have developed small molecule modulators that selectively target the toxic aspects of microglial responses. The lecture will also address our ongoing efforts to understand microglial interactions with other CNS cell types, with the ultimate aim of designing tailored, microglia-targeted therapies for neurodegenerative conditions.

[Short Bio]

Dr. Li Gan serves as the Director of the Helen and Robert Appel Alzheimer's Disease Research Institute at Weill Cornell Medicine, where she also holds the title of Burton P. and Judith B. Resnick Distinguished Professor in Neurodegenerative Diseases. After earning her Ph.D. in cellular and molecular physiology from Yale University School of Medicine, she completed postdoctoral training at Harvard Medical School and the Gladstone Institutes at UCSF. Before joining Weill Cornell Medicine in 2018, she was a senior investigator and associate director at the Gladstone Institute of Neurological Diseases and a Professor of Neurology at UCSF.

A leading expert in neurodegenerative diseases, Dr. Gan focuses on unraveling the molecular mechanisms and developing therapeutic strategies for conditions such as Alzheimer's disease, frontotemporal dementia, and Parkinson's disease. Her groundbreaking research includes the discovery of tau acetylation and significant contributions to understanding microglial mechanisms in disease progression. She has

pioneered scalable neural models using human iPSCs, leveraging functional genomics to identify novel disease-modifying pathways, which have advanced several clinical trials. With over 100 publications in top-tier journals, Dr. Gan has received numerous prestigious awards, including the Glenn Award in Aging Research, the Inge Grundke-Iqbal Award for Alzheimer's Research, and the Helis Prize for Parkinson's Disease Research. She also leads multiple NIH-funded projects, collaborates with philanthropic organizations, and actively contributes to the scientific community through editorial board service and peer review for leading journals and grant agencies worldwide.

Website:

<https://vivo.weill.cornell.edu/display/cwid-liq2033>

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