

Professor Virginia LEE Man-Yee

Citation

A long-standing, distinguished career focusing on finding cures to major neurodegenerative disorders of aging has set Professor Virginia LEE Man-Yee on her path to making a difference in the world. The biochemist and neuroscientist moved to Hong Kong at a young age and became world-renowned for her work in Alzheimer's disease, all because she demonstrated bravery in putting forward new ideas that challenged the orthodoxy.

Currently Director of the Center for Neurodegenerative Disease Research (CNDR) at the University of Pennsylvania, the prolific scholar has authored more than 1,000 research publications, which are cited by nearly 200,000 articles. Yet her path has been unconventional to say the least.

Born on a roadside in Chongqing, her family fled China during wartime. She was educated in Hong Kong, moving to London to pursue piano training at the Royal Academy of Music in 1962. Although her mother insisted she learn the piano, the unorthodox young woman found her real passion in science. She decided to change her path and pursue a bachelor's degree in chemistry at the University of London, where she went on to read a master's degree in biochemistry.

Having completed her PhD at the University of

California, San Francisco, the US, she spent a year-long postdoctoral stint at the University of Utrecht, which became a turning point in her scientific career. There she developed a curiosity about the brain, paving the way for her seminal research that untangled many mysteries behind neurodegenerative diseases.

Another pivotal moment came when she met her future husband John TROJANOWSKI while undertaking post-doctoral training at Boston Children's Hospital. After several twists and turns, including a frustrating time she experienced in the pharmaceutical industry, the couple ended up at the University of Pennsylvania, with Prof. Lee studying an MBA at Wharton. They later worked with clinicians to store their data and bank samples, run a drug-discovery program, and pursue basic science research. The MBA helped her think like a small-business owner, and when neuroscience came calling again, they were savvy enough to run labs on Alzheimer's research - fortunately, the science took off in a major way.

There were many doubters, even with some colleagues describing Alzheimer's research as a "wasteland" where careers were ruined. Yet together, the couple blazed a trail that would create shockwaves around the globe, particularly in a 1991 *Science* paper in which they identified the protein *tau* as a major factor

leading to Alzheimer's disease. Their groundbreaking discovery demonstrated new targets for drug development which could provide better treatments for these disorders.

The work has not gone unnoticed - over three decades, during which the duo changed perceptions and made significant headway on Parkinson's, frontotemporal dementia, and amyotrophic lateral sclerosis, also known as ALS. With her outstanding achievements, Prof. Lee has been ranked by Research.com among the world's top 100 scientists and as the second ranking female scientist, securing a multitude of honors along the way. Among them, she won The Breakthrough Prize in 2019, the equivalent of climbing Mount Everest for scientists. Known as the "Oscars of Science", the accolade was awarded for her discovery of *TDP-43*, a protein that binds to DNA and can be harmful when built up in the brain.

Despite her public profile, Prof. Lee remains humble and in touch with her roots in Hong Kong. Her relationship with HKUST spans over two decades. Since her first visit to the University to attend the Gordon Research Conference on Molecular and Cellular Neurobiology in 2002, she has been a regular visitor, generously sharing her expertise and experiences with the HKUST neuroscience team. Her input contributed to the initiation and

undertaking of the first human genetics and biomarker study of Alzheimer's disease in Hong Kong, which led to the discovery of new biomarkers and drug targets for the condition.

Prof. Lee also provides strategic and scientific input to large-scale multidisciplinary programs at HKUST. She is currently a member of the International Advisory Board of an eight-year project entitled "Cellular Mechanisms of Synaptic Functions and Plasticity in Health and Neurodegenerative Diseases", undertaken by HKUST under the Area of Excellence Scheme (AoE). The AoE scheme of Hong Kong's Research Grants Council specifically funds research projects that are of strategic importance to the long-term development of Hong Kong. As an advisor, Prof. Lee reviews the project with other experts, offering her scientific and strategic guidance and mentorship to the AoE team.

Council Chairman, on behalf of the Council of the Hong Kong University of Science and Technology, I have the high honor of presenting to you, Prof. Virginia Lee, Director of the Center for Neurodegenerative Disease Research at the University of Pennsylvania Perelman School of Medicine, for the award of Doctor of Science *honoris causa*.