Dr. WANG Xiaodong

Citation

Dr. WANG Xiaodong is one of the world's pre-eminent researchers on the study of programmed cell death. His groundbreaking research has paved the way for the development of therapeutic drugs for many human diseases including cancer. The biochemist's wide and deep impact on life biology reflects his boldness, creativity, and commitment to pushing scientific boundaries and treating life-threatening illnesses.

Dr. Wang was born in Wuhan in 1963 and grew up in a family with scholarly tradition. Developing a strong interest in biology and math from a young age, he obtained a BSc Degree in Biology from the Beijing Normal University in the early 1980s before earning a prestigious scholarship to study modern biochemistry and molecular biology at the University of Texas (UT) Southwestern Medical Center. After completing his PhD Degree there in Biochemistry in 1991, he started postdoctoral research into cholesterol metabolisms at the Nobel prize-winning Brown and Goldstein laboratory.

While there, the doctor was able to identify an enzyme that has a pivotal role in apoptosis, a form of programmed cell death. Then a largely unexplored subject, apoptosis is a cell death process via which human bodies expel unwanted cells.

Constantly challenging himself to make "every new paper better than the last", Dr. Wang leveraged this early discovery to start digging deeper into the apoptotic process. While Assistant Professor at Atlanta's Emory University in 1995, the doctor and his colleagues made another of the breakthroughs which underpin his formidable reputation: The development of an "*in vitro* assay", a novel cell-free system capable of pinpointing the elements that initiate apoptotic cell death.

Leveraging the newly developed system, Dr. Wang was able to piece together the complex molecular puzzle of how cells commit suicide. Having been brought back to UT's Department of Biochemistry as a faculty member, the doctor conducted various additional studies. He and his fellow researchers eventually identified two important biochemical steps triggered by cytochrome c and APAF1, the proteins that initiate the programmed cell death process. They also discovered that the release of cytochrome c from mitochondria regulated by oncogenic protein Bcl-2 had revealed a brand new role of mitochondria as a signalling organelle that can dictate cell death, in addition to their classical functions as energy generator and metabolic center. The advances have been instrumental in developing medicines capable of overcoming cancer cells' ability to resist our bodies' efforts to eliminate them.

Dr. Wang's research discoveries have unraveled the mysteries surrounding apoptosis, but he refused to rest on his laurels. He broadened his research scope to address necroptosis, another form of programmed cell death different than apoptosis and identified key components in cells that carry out necroptosis. In expanding science's understanding of a form of cell death that triggers innate immune responses, the doctor significantly enhanced medical professionals' ability to combat neurodegenerative diseases.

Having held UT's George MacGregor Distinguished Chair Professor and a Howard Hughes Investigator from 2001 to 2010, the doctor returned to China full time in 2010 as Director and Investigator of Beijing's National Institute of Biological Sciences, a post he still occupies. He also joined forces with leading Mainland universities in mounting joint PhD programs that have now motivated some 730 new scientists to follow in his footsteps. As a co-founder of biotech company, BeiGene, he remains actively involved in researching and developing new cancer drugs for major pharmaceutical firms.

The lengthy list of prestigious academic accolades Dr. Wang has received includes the 2004 US National Academy of Science Award in Molecular Biology and the 2006 Shaw Prize in Life Science and Medicine. He also serves on and advises numerous internationally influential bodies, namely the US National Academy of Sciences, Howard Hughes Medical Institute, European Molecular Biology Organization, and the Chinese Academy of Sciences. He currently also serves as University Chair Professor at Tsinghua University and director of Tsinghua Institute of Multidisciplinary Biomedical Research.

The doctor's association with HKUST dates back to 2012, when he became a scientific advisor for the University's School of Science, a position he continues to hold today. In addition to exchanging scientific insights with both HKUST academics and students, he also promotes the School's strategic development and advises on nominees for its Head and Dean positions.

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, Dr. Wang Xiaodong, Director and Investigator of the National Institute of Biological Sciences, Beijing, for the award of Doctor of Science *honoris causa*.