

Po Tien (1931-2019) A Pioneer in Virology in China



As an academican of the Chinese Academy of Sciences (CAS), the honorary director of the CAS Key Laboratory of Pathogenic Microbiology and Immunology in the Institute of Microbiology, a full member of the America Society for Virology, Professor Po Tien was a highly honored scientist and one of the largest players in the Chinese virology community. He passed away on December 15, 2019.

Professor Po Tien was born in December 1931 in Huantai, Shandong. He graduated from Beijing Agricultural University, now China Agricultural University and then was assigned to the Fungus and Plant Disease Research Laboratory, the precursor of the Institute of Microbiology of the CAS. There, he proposed a virus-free seed potato production scheme that has been widely used in China and has generated significant economic value for Chinese agriculture.

In the early 1980s, Professor Tien visited many famous plant virology laboratories in the world. During his visit to the University of Adelaide in Australia, he realized the importance to understand the interactions among satellite RNAs, viruses, and host plants. After returning to China, Professor Tien immediately began researching the subject and successfully developed virus satellite-based biological reagents that can control plant viruses.

After 1986, he focused on study of viral and viroid disease-resistant transgenic plants. He constructed cucumber mosaic virus-resistant transgenic tobacco and tomato strains, and constructed rice-stripe and rice-dwarf virus-resistant transgenic rice and found the phenomenon of silence of the resistant genes. He provided the first example of a ribozyme capable of completely inhibiting nuclear replication of the viroid in transgenic potatoes, and thus, developed a new ribozyme application approach.

Towards the end of the last century, Professor Tien's research interest turned to medical virology. He led the discovery of a complex of an antigen peptide and heat shock protein gp96 in liver cancer tissues infected with hepatitis B virus, which proved that gp96 and its N-terminal fragment have adjuvant function. He also led the study of the molecular mechanism of 7-peptide repeats of SARS and HIV fusion proteins including cell fusion and the design of a triple helix protein resistant to HIV.

The research topics Professor Tien chose always aimed to solve practical problems of China. When the country's food production was low, Professor Tien devoted himself to researching and solving shortages in food and clothing; when food production increased and food and clothing were mostly resolved, he devoted himself to defend against diseases with science.

Professor Tien was also a great educator. Countless students and collaborators of his are now undertaking important research missions in China and making great contributions to the country.

We feel that Professor Tien will still live in our hearts. His tireless pursuit for innovation in science will continue to guide us to explore the world of virology.

Yeping Sun and Weihua Zhuang are part of Professor Tien's laboratory group. Yeping Sun worked with Professor Tien for nearly 10 years, and Weihua Zhuang worked with Professor Tien for over 20 years. Email: sunyeping@im.ac.cn and zhuangwh@im.ac.cn.