

In Memoriam: Professor Ray Wu

• Editorial Introduction •

Commemorating the Life of a Legend

On February 10th of 2008, Professor Ray J. Wu (吴瑞) passed away in Ithaca, New York. The sad news spread rapidly across the world and shocked many people in the international life sciences community as well as in Chinese society. People felt great sorrow and many condolences went to his beloved wife Christina and his family. A memorial service, seminar, and symposium were held shortly after in Ithaca, Beijing, and Taipei to remember the life and work of this extraordinary molecular biologist and geneticist. Professor Ray Wu was a highly acclaimed yeast geneticist who pioneered synthetic DNA technology and its applications to biology. He was also one of the first to translate recombinant DNA technologies from yeast to plants. As one of the founding fathers of plant genetic engineering, his work led to the development of genetically engineered rice, which addresses the critical issue of world hunger. Professor Ray Wu's devotion to fostering the careers of young scientists went far beyond the China-United States Biochemistry Examination and Application (CUSBEA) program and has benefited generations of researchers in China. The editorial committee of "Science in China" life science edition has decided to remember the life of a legend with this special memorial issue.

I first heard about Professor Ray Wu in the summer of 1987 from Professor Pei-sung Tang (汤佩松), my grandfather's classmate at Tsinghua School preparing for US college education (清华留美预备学校) from 1917 to 1925. Professor Tang was widely recognized as the father of plant physiology in China and the first Chinese biologist publishing in *Nature* and *Science* in the 1930s and 1940s. During Professor Ray Wu's visit to Beijing, Dr. Pei-sung Tang told me proudly about the achievement of his old friend Hsien Wu (吴宪), Ray's father who is the father of Biochemistry in China. Professor Hsien Wu was the chair of the Biochemistry Department at Peking Union Medical College (PUMC 北京协和医学院), founded by the Rockefeller Foundation in 1917, and recognized as the best medical school in Asia in the last century. Professor Hsien Wu pioneered protein denaturation research in the 1930s. The landmark paper "Studies on denaturation of proteins. XIII: A theory of denaturation" was published in 1931 (*Chinese J. Physiol.* 5, 321-334) and was republished by an Elsevier Journal 64 years later in 1995 (*Adv. Protein Chem.* 46: 2-26). Dr. Tang said that "Ray is a good son of his father." I knew this was a very high compliment from Dr. Tang and I was deeply impressed. At that time, I had no idea I would follow in Hsien Wu's footsteps to become chair of the Biochemistry Department of PUMC 20 years later. I met Ray Wu for the last time in the summer of 2007 at the Chinese Biological Investigators Society (CBIS) conference in Beijing, where I invited him to revisit PUMC. Life is indeed full of unexpected coincidences.

The president of PUMC, Professor Depei Liu (刘德培) who is also the vice president of the Chinese Academy of Engineering, of which Ray Wu was the overseas member, hosted a memorial conference on November 7th, 2008 in Beijing. Most of the articles in this memorial issue for Ray Wu are contributed by speakers at this conference. Professor Ray Wu's wife, Mrs. Christina Wu, their son Albert and daughter-in-law Diana wrote about the history of the Wu family and about Ray as "a well-rounded person"; Professor Yu-fei Shen (沈翊珩) remembered Ray's PUMC connection and the unforgettable Yenching (燕京) days; Professor Pei Li (李佩), wife of



From left Dr. Albert Wu, Mrs. Christina Wu, Chengyu Jiang, and Professor Binren Huang at PUMC Hsien Wu library

China's "atomic bomb, missile, and satellite" founder Yonghuai Guo (两弹一星元勋郭永怀), described her Cornell connection with Ray and her role in designing the English examination papers for CUSPEA and CUSBEA. Professor Xiaocheng Gu (顾孝成) reviewed the history of how Ray Wu convinced the deputy minister of Education Xinbai Huang (黄辛白) along with his China official counterpart, President of Peking University Long-xiang Zhang (张龙翔), to initiate the CUSBEA program in the early 1980's; Professor Yigong Shi (施一公) described Ray's devotion to the Chinese Biological Investigators Society and Ray's passionate speech on how to break the "glass ceiling." CBIS was formerly known as the Ray Wu Society, which mostly consists of CUSBEA students who became principle investigators in the USA. Professor Yigong Shi also contributed a scientific review article on this issue "Assembly and structure of protein phosphatase 2A"(pp135—146)to accompany this memorial topic. Professor Ning-Sun Yang (杨宁荪) remembered Ray Wu's founding role of the Agricultural Biotechnology Research Center and Ray's ambition to tackle the most important thing; 民以食为天, "food is the fundamental need for human society". In addition, we received a "very interesting" article from US Academician Jack Szostak who obtained his PhD from Ray at Cornell University. Jack described how Ray mentored him from a young and inexperienced graduate student without the necessary background, and Ray's laboratory environment "where we could do anything, limited only by our imagination and ability, and never by physical resources." Ray's daughter Alice wrote about the eight lucky lessons she learnt from her father; Ray's sister Christine also sent us her memorial paper about Ray being her "Big brother, close friend and valued consultant;" Finally Professor Bik Tye remembered her former colleague at Cornell and filled in an important piece of the CUSBEA puzzle. She was the witness to the meeting held in Beijing People's Hall in the winter of 1979-1980 when Deng Xiaoping (邓小平) shared "his visionary and impassioned speech on how he foresaw China could rise from its demise to be an equal to western countries" with overseas Chinese physicists. Xiaoping Deng's proposal at the meeting of Beijing People's Hall, "to send the best and brightest from China to be educated in the US and other parts of the world with the hope that they will fill the gap and bring back their knowledge to China", inspired Nobel Laureate T.D. Lee (李政道) to initiate the CUSPEA Program in physics. Bik was also the angel who brought the message from Professor T.D. Lee, the founder of the CUSPEA Program, to Ray, the founder of the CUSBEA Program.

Professor Ray Wu was not only a pioneer in molecular biology contributing significantly to the fundamental needs of human society, but he also mentored talented young scientists both in the USA and in China, and fasten the modernization of China's biological sciences which will hopefully be equal to those of western countries in the near future, as foreseen by Deng Xiaoping. We hope this one year memorial topic can reflect a part of the great life of Professor Ray Wu and help to ensure that his legacy will be remembered forever.

Chengyu Jiang

Department of Biochemistry and Molecular Biology, Peking Union Medical College,
Chinese Academy of Medical Sciences, No. 5 DongDanSanTiao,
Beijing, 100005, P. R. China
Email: Jiang@pumc.edu.cn

Author's Biographical Sketch

Chengyu Jiang (蒋澄宇) is Chair and Professor of the Department of Biochemistry and Molecular Biology, Peking Union Medical College (PUMC) and the Chinese Academy of Medical Sciences. She obtained her B.S. from the University of Science and Technology of China, her PhD from Brown University, and did postdoctoral training at Massachusetts General Hospital, USA, which is affiliated with the Harvard Medical School, before joining PUMC in 2003. Her research is focused on elucidating the molecular pathogenesis of RNA viruses such as SARS-CoV, Avian Flu H5N1, HCV, and Ebola. Dr. Jiang has published extensively in numerous peer reviewed journals including Nature, Nature Medicine, Cell, and PNAS. She is also an inventor of a number of international patents. Some of the patents are exclusively licensed to a top 5 international pharmaceutical company and an international biotech company. She has served as a member of the WHO IARC fellowship committee in Lyon, France from 2005 to 2008 and as the chair in 2007/2008. She has received numerous honors including "Cheung Kong" Scholar and National Outstanding Young Award Fund.

doi: 10.1007/s11427-009-0028-1