

Chu-Yung Lin

Chu-Yung Lin (林秋榮) passed away peacefully in Taipei on October 22, 2015. He was 87. Chu-Yung was instrumental in introducing biochemistry and molecular biology to the study of plant physiology in Taiwan starting in the mid-1960s until his retirement in 1999.

Consequently, many undergraduates he taught were well equipped to enter graduate schools in the United States and elsewhere and have become successful in various science professions, including as leaders in academia, research, and industry. Chu-Yung continued to be active as professor emeritus at the National Taiwan University (NTU) until two weeks before his passing. His beloved wife had passed away two years earlier.

Born in Taiwan in August 1928, Chu-Yung received his undergraduate education at NTU majoring in chemistry. He became a teaching assistant in the Department of Botany, where he was first exposed to plant biology, before going abroad for graduate studies. He received a PhD at the University of Oklahoma in the Department of Botany and Microbiology and carried out postdoctoral research with Joe Key at Purdue University.

He started his academic career in 1966 at NTU, where he offered the first course in biochemistry at the university. He continued to teach courses related to biochemistry and molecular biology and plant physiology to life science students until his retirement. In addition, he



served as chair of the Department of Botany (1976–1982) and dean of the College of Science (1990–1993). After retirement, he remained active, taught graduate-level seminar courses, attended international meetings, and never ceased to enhance education and research in plant biology.

Research Highlights and Contributions

With a strong background in biochemistry, Chu-Yung pioneered investigations to study the molecular basis of protein biosynthesis in plants and the molecular action of the hormone auxin. These studies opened the way to the beginning of plant molecular biology. As early as 1966, he showed that soybean root tips had a high proportion of polyribosomes that were dissociated by ribonuclease treatment, suggesting ribosomes were held together by RNA, later shown to be mRNA. Initially it was thought that

auxin stimulated RNA expression by enhancing RNA polymerase I. These studies laid the groundwork for later discoveries of small auxin up-regulated RNAs and their promoters by Tom Guilfoyle and colleagues.

Chu-Yung's laboratory later studied the basis of heat stress in plants. His group found that many small proteins were induced by heat in soybean and rice seedlings and confirmed that these small heat shock proteins are required for the establishment of thermotolerance. Chu-Yung has a long record of publications in journals such as *Plant Physiology*, *Proceedings of the National Academy of Sciences*, and *Journal of Molecular Biology*. This record is remarkable as the facilities, resources, and research environment in Taiwan were considerably limited in the early stages of his professional career. In recognition of his accomplishments, he was elected as an Academician of the Academia Sinica in 1998, and in 2008 he became a corresponding member of ASPB, the first Taiwanese scientist to receive this honor.

Teaching and Mentoring: Impact on Students

Perhaps Chu-Yung's most exceptional achievement has been through the education and mentoring of his students, trainees, and colleagues. This contribution is relatively invisible to the international community.

Many of us were fortunate to be among the first undergraduates in Chu-Yung's courses. His

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ASPB Pioneer Member

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lectures were clear, logical, and stimulating. More importantly, he brought the topics to life through his knowledge of the scientists and his clear descriptions of the experiments and evidence supporting the concepts, including for DNA replication, transcription, and translation. His exams were refreshing as they tested our ability to solve problems, to reason, and to deduce. No doubt he stimulated much interest in biochemistry and molecular biology. Some students got their first taste of research in his laboratory. Although laboratory equipment was limited then, the future of biochemistry and molecular biology was bright and promising. Chu-Yung's lectures and laboratory training continued to make a strong impact on countless young minds until his retirement and beyond.

Chu-Yung was approachable and enjoyed many laughs with students who sought advice. He predicted that some of us had potential and encouraged many to pursue graduate degrees. He directed us to some of the best plant research laboratories in the world, including Michigan State University and the University of California at Berkeley and at Davis. His letters of recommendation had impact because his name was recognized by plant biologists. Later, he would proudly introduce us to other established plant scientists at annual meetings when we were still unknown as graduate students or postdocs.

Chu-Yung had a passion for science and for the good life, taking students to well-known eateries for delicacies and wines, enjoying coffee he personally brewed in his office, playing golf, listening to classical music, and watching opera. To most students, he was an unusual professor who was young at heart at all times.

Retirement Years

Chu-Yung maintained his interest in plant research and the professional development of his mentees. The sharp intellect, natural curiosity, and enthusiasm for learning remained unchanged for over 40 years! At annual meetings of ASPP and later ASPB, he would always want to know what was new and had incisive questions about novel developments. Invariably, he would also talk about results coming from his own laboratory and discuss possible interpretations. It was amazing to see him at annual meetings of ASPB (e.g., Seattle or Boston) interacting and going to talks, even though he had been retired for years.

A hallmark of a distinguished scientist is revealed most clearly when one has passed retirement age. Chu-Yung continued to take an interest in the development of the Institute of Plant Biology at National Taiwan University and the Institute of Plant and Microbial Biology and the Agricultural Biotechnology Research Center at the Academia Sinica. The countless plant biologists who were mentored by him or were inspired by his example include Zinmay Renee Sung (University of California,

Berkeley), Anthony Huang (University of California, Riverside), Teh-hui Kao (Pennsylvania State University), Jen Sheen (Harvard University), Yi-Fang Tsay (Academia Sinica), and many other plant biologists in major universities and research institutes in Taiwan. Most of them are active members of ASPB.

Chu-Yung had a long record of contributions in research and teaching and was particularly influential in attracting some of the brightest people in Taiwan to the field of plant biology. In 2014, the CY Lin Foundation for Plant Science and Education was established jointly by Academia Sinica and the National Taiwan University Academic Development Foundation (ntuadf@gmail.com). The primary mission of this foundation is to provide scholarships and awards to promising young plant biologists.

We feel fortunate and grateful to have had such a mentor. He will be missed, yet his legacy lives on in many trainees and colleagues in Asia as well as on other continents.

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