教育部學海逐夢 心得分享

獲補補助年度	114
薦送學校、系所、年級	台大農藝系四年級
中文姓名	朱芷葳
國外實習國家 (含城市)	Houston, Texas, USA
國外實習機構	Rice University
國外實習考評成績或評語	
短片時間及標題	Zhi-Wei (Andrea) Chu - 2026 MACHI Research Student at Rice University https://www.youtube.com/shorts/-ScfoVvtFSI

Background

Two years ago, I watched a video of program alumna sharing her experiences at Rice University. Seeing a research-based internship that provided funding to explore academic life in the U.S. sparked my strong interest in applying.

Fig. 1 2025/2026 MACHI Participants

Host Institution Overview

While Rice University is widely recognized for its excellence in engineering research, its fundamental studies in BioSciences align perfectly with my research interests. I believe this program will help bridge the gaps in my current research skills. Therefore, I applied for the program and was successfully admitted during my final year at NTU.

Learning Experience at the Host Institution

While there are relatively few plant science laboratories on campus, they are highly specialized. In my host lab, all members focus on the functions of peroxisomes in Arabidopsis thaliana, investigating the topic from various biological perspectives. My PI, Dr. Bonnie Bartel, is exceptionally supportive and maintains a lab environment characterized by clear structure and seamless cooperation. For instance, she conducts individual weekly meetings with each member, complemented by a collective group meeting once a week. Laboratory responsibilities and routines are clearly distributed and rotated among the team. I was particularly impressed by the comprehensive lab protocols, which even included practical life tips from our PI. Furthermore, our regular journal clubs allow us to stay updated on the latest research trends in our field.

Our primary goal of the study is to develop a new reporter system, RUBY, in Arabidopsis. When the organellar protein import process is mutated, the plant expresses a red appearance. My work focuses on selecting stable mutant lines for future gene identification. Throughout this project, I received one-on-one mentoring from a PhD student in the lab. She was incredibly thoughtful, ensuring that I not only understood every experimental step but also grasped the underlying scientific

concepts. Finally, during the poster session, we dedicated significant effort to presenting our project and sharing our findings with the broader community.

Fig 2. Me and my mentor at the plant room. Me and my PI during the poster session.

Cultural and Life Experiences

The MACHI Program organized several excursions for us to iconic Texas landmarks, including the Houston Livestock Show and Rodeo, Night at the Museum and Taste of Texas.

We also experienced the world-renowned Rodeo culture. The program provided tickets to the Rodeo Super Series and a live concert. Although the competition between humans and animals felt intense at times, we observed the event with respect for its deep-rooted cultural significance in Texas.

Another highlight was the Night at the Museum, located within walking distance of Rice University. It felt like a cherished tradition where different departments held reunions with refreshments. We enjoyed exploring the exhibitions after hours and mingling with fellow students, even capturing memories at a photo booth.

Regarding the culinary experience, Houston is celebrated for its authentic Tex-Mex cuisine, a result of its rich immigrant history. Over the five-week program, we sampled various Tex-Mex dishes and, of course, legendary Texas BBQ. Our meal at Taste of Texas was particularly memorable for its generous portions and bold seasonings.

Fig 3. Night at the Museum. Rodeo. Texas BBQ

Personal Growth and Achievements

The five-week MACHI Program has been a transformative experience, contributing significantly to my academic and personal development. My key takeaways are summarized as follows:

- Professional English Proficiency: Enhanced ability to communicate scientific concepts and engage in academic discussions in an all-English environment.
- Advanced Plant Science Research: Gained in-depth knowledge of plant molecular biology through hands-on study of Arabidopsis thaliana.
- Molecular Breeding Workflow: Mastered the technical workflows for gene transformation and the screening of induced mutants.
- International Networking: Established strong professional and personal connections with participants from Japan and Taiwan, fostering future cross-border collaboration.

Reflections and Suggestions

Overall, the program offered a condensed yet highly rewarding schedule, allowing participants to fully immerse themselves in the academic and cultural life of Houston and Rice University. While five weeks may be brief for conducting entirely independent research, it was an ideal duration for experiencing the vibrant atmosphere at Rice and building meaningful relationships with fellow scholars from Japan and Taiwan. Although the time passed quickly, the memories and insights I gained are both impactful and long-lasting. I am grateful for this opportunity to broaden my perspective and strengthen my passion for plant science.

Fig 4. All 2025/2026 Tomodachi and Machi Participants (Giving the owls)