Advancing science at Harvard

UCSI University opens doors yet again by sending two medical students for year-long research programmes at one of the world's top varsities.

FOR most undergraduate students at Malaysian universities, the very thought of advancing science at Harvard University or Imperial College London would pass as wishful thinking.

That is, unless you happen to study at UCSI University.

The University's top students advance research at the world's best universities annually and the initiative started last year when UCSI sent its top medical student for a year-long research programme at Harvard Medical School.

Shortly after, two of UCSI's best Engineering students were selected for summer research programmes at Imperial College London.

The results: Invaluable experience to learn from - and work alongside - some of the world's best minds and the distinction of publishing papers in renowned scientific journals.

This year, UCSI is sending not one, but two medical students to Harvard under the Pre-doctoral Research Training Programme.

Enter Tan Jia Wei and Ting Pei Yee. The duo will now spend a year at Harvard's Brigham and Women's Hospital.

"You can only advance medicine through research and I can't wait to get started," enthuses Jia Wei who intends to be an oncologist.

"I will be involved in clinical research at Harvard and I will be analysing big data to understand as much as I can about patients, diseases and the correlations that drive important decisions in medicine."

She added that her interest in research first started in her first year at UCSI when her mentor, Assoc Prof Dr Cheah Shiau Chuen – the director of UCSI's Office of Postgraduate Studies, involved her in various research projects.

Jia Wei was also sponsored to attend the 23rd Biennial Congress of the European Association for Cancer Research in Munich and she observed how research was a key driver in medical technology.

An aspiring pathologist, Pei Yee is preparing for Harvard by training hard at UCSI's labs.

"It's good to work with sophisticated instruments that we are not exposed to on a regular basis," she mulls.

"It's challenging but enjoyable and I'm sure my year at Harvard will expose me to cutting-edge research at its best."

"I'm flexible and I want to learn more so I'll go to Harvard with an open mind, focus on the research experience and give my best."

Both Pei Yee and Jia Wei add that they would relish the opportunity to conduct their own research projects at Harvard. They are also looking forward to attend lectures and experience the intellectual vibrancy at the renowned university many regard as the world's best.

"We're really thankful for the opportunity and we'll definitely make the most of it," says Pei Yee. "It's good that UCSI is going the extra mile to make such arrangements with the world's best universities."

"It adds to the student experience and it's something not many other universities can do."

The duo's research stint at Harvard is sponsored by the UCSI University Trust - the University's scholarship arm.

"Wishing her juniors all the best, Cherish Chong Chiu Wern - UCSI's first student at Harvard - only has good things to say of her experience."

Back in Malaysia, Cherish is elated with the news that her work at Harvard has resulted in two research papers that are due to be published.

"This is far more than what I expected when I packed my bags for Harvard," she quips. "When I got there, I thought it would be nice if I could just tag along for a research project."

"I never thought of conducting one by myself".

Initially receiving close supervision, Cherish was soon entrusted to conduct her own work which focused on the adrenal glands that has a variety of hormones including aldosterone.

"Among its other functions, aldosterone plays a central role in the regulation of blood pressure through several ways - by conserving sodium or by reabsorption of ions and water."

 Traditionally, the production of aldosterone is thought to be regulated by the level of sodium in one's body. Less sodium in the body will result in more of the hormone and vice versa.

Instead of being regulated by the level of sodium, her work in the lab showed that the aldosterone hormones are regulated by the adrenal glands, specifically the mineralocorticoid receptors (MR).

To confirm this, she manipulated other receptors in her lab rats.

Cherish soon made an important discovery.She found that the MR does not only regulate aldosterone, but also corticosterone - a hormone that regulates energy, immune reactions and stress responses.

No one else had discovered this. But interestingly, her initial reaction to this discovery was disappointment.
“I felt down because my hypothesis was off,” says Cherish. “But when I told Prof Williams of my findings, he was excited and that was when I realised their importance.”

Her findings did not come easy – there were periods when she spent 12 hours a day in the lab. And for this, she felt grateful to UCSI for providing her with intensive lab training before she left for Harvard.

Out of everything she learnt at UCSI, she singles out the proper pipetting technique as most important. A pipette, also known as a dropper, is a tube used to suction small amounts of liquid for transfer or measurement.

“Accuracy matters a lot in research, and I used the pipette continuously for a year in Harvard,” she explained.

Another challenge for her, was working with lab rats. To get to the adrenal glands, she had to remove them from the kidneys of lab rats. This was not easy for Cherish as she loves animals. Additionally, they cost US$40 per rat, and Cherish shares how the first time she dropped one and it escaped, she immediately thought, “That’s RM170 ringgit right there”. The fact that she is dealing with live animals and they cost the university money made her highly focused and aware of the aim of her research project.

Because of this, her hours in the lab never felt like work. Her supportive lab mates also made her work enjoyable.

In true UCSI camaraderie, Cherish met Jia Wei and Pei Yee before they left for Harvard.

Her advice: Learn all you can, enjoy every moment and do not put too much expectation or pressure on yourself.

“When I first stepped into Harvard, I never thought of how many research papers I would publish,” explains Cherish. The answer is clear one year later – two.

UCSI is a contributor to the Star Education Fund.
Ready to go: Jia Wei (left) and Pei Yee (right) are looking forward to their clinical research.