Top research scientists and engineers receive highest accolade

By VICTOR LOH

The recipients of the President’s Science Award: (from left) Assoc Prof Lim Kah Leong from NUS, Assoc Prof Louis Tan from the National Neuroscience Institute (NNI), Prof Ng Huck Hui of Genome Institute of Singapore and Prof Tan Eng King from NNI.

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SINGAPORE — When Professor Judith L Swain first arrived in 2002 to spearhead the Republic's clinical and translational research scene — which converts research into potential treatments for diseases — it was almost unheard of for doctors not to practise medicine.

The visiting professor at the Yong Loo Lin School of Medicine, National University of Singapore (NUS) said most parents were resistant to sending their children to medical school only to have them end up as physician-scientists.
"The idea that a doctor would do some patient care, but (spend) most of their time doing research was not really accepted as what you'd want your child to do," the 69-year-old American, who is a cardiologist by training, added.

Sixteen years on, she has helped to build up the clinical and translational research scene and nurtured a generation of physician-scientists here. And on Tuesday (Sept 25), Prof Swain was awarded the President's Science and Technology Medal — the highest accolade conferred upon research scientists and engineers in Singapore.

Invited here by Mr Philip Yeo, the former Chairman of the Agency for Science, Technology and Research, Prof Swain — who was formerly with Stanford University — said unlike practising medicine where gratification is more immediate, the results in research take a longer time to be seen and felt.

"If I'm taking care of somebody having a heart attack, I save a life and the next day you have this immediate gratification... By taking the longer view as a physician-scientist, especially in translational and clinical research, you can look back and say, 'I really changed how a disease is looked at or the understanding of a disease'," she said.

On receiving the award, Prof Swain said: "It is nice to see that at
Prof Swain was one of four individuals and a team of four researchers who received their awards for contributions to the science and technology field from President Halimah Yacob during a ceremony at Capella Singapore on Tuesday.

NURTURING LOCAL SCIENTIFIC TALENT

The President’s Science and Technology Awards, which is in its tenth year, has helped to recognise a generation of research scientists and engineers in Singapore over the past decade.

Prof Lam Khin Yong, vice-president of research at Nanyang Technological University (NTU), was another recipient of the President's Science and Technology Medal.

He was recognised for his research leadership in nurturing scientific talent here, in particular, his efforts to encourage collaboration between the academia and industry which saw the creation of corporate labs and bilateral research partnerships in Singapore between NTU and companies such as Rolls-Royce, BMW and Chinese multinational conglomerate Alibaba.

"In Singapore, the only resource we have is the human capital ... Even as we undertake research we cannot forget about talent in Singapore. We need to grow our homegrown talents," he said.
For these collaborations to work, foresight is needed. He said: "If I realise today that (artificial intelligence) is a hot area, it is too late. In science, we always need to plan ahead. One key challenge for universities' leadership is always to bring in talent, faculty members and research staff and ensure that these talents will play a role in Singapore's future economic growth."

WORLD FIRST IN CREATING LIVE HUMAN MINI MIDBRAIN

A quartet studying Parkinson's Disease received the President's Science Award for their work in that field, particularly their breakthrough research, where they managed to generate the world's first live human midbrain in a laboratory.

Prof Tan Eng King and Associate Professor Louis Tan from the National Neuroscience Institute (NNI), NUS Assoc Prof Lim Kah Leong and Prof Ng Huck Hui from the Genome Institute of Singapore said their interest in the field was partly spurred by questions which patients had about the neurodegenerative disorder, such as how to slow down its progression, and whether there are drugs to reverse it.

By 2040, the World Health Organisation predicts that neurodegenerative diseases such as dementia and Parkinson's Disease will overtake cancer to become the second leading cause of death. And in Singapore where the population is ageing rapidly — the number of seniors aged 65 years and above are set to almost double to over 900,000 by 2030 — such diseases will become a bigger health concern.

With just a drop of blood or other biomaterials, the researchers can now generate a live human mini midbrain from patients struggling with treatment, as well as patients who have not developed the disease, but are at risk of developing it, said Prof Tan Eng King.

The ability to create diseased models of the human brain in a laboratory for experimentation cuts through challenges such as not being able to replicate the research through animal samples or getting human samples through biopsy.

And it allows the researchers to conduct research on drug compounds or interventions to reverse the disease, and deliver
Other scientific discoveries which the team has made include the development of a test to monitor the disease and the identification of a drug target that is common in Parkinson Disease and Alzheimer's, and is being tested on the lab-generated human mini brains.

Other winners of this year's President's Science and Technology Awards included Prof Loh Teck Peng from NTU and Prof Stuart Cook from Duke-NUS Medical School and National Heart Centre Singapore.