

Singapore honors excellence in pioneering bioscience endeavors at the 2025 President's Science and Technology Awards

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President's Science and Technology Awards (PSTA) for stimulating the country's science and technology (S&T) ecosystem.



The Singapore National Research Foundation (NRF) celebrated the nation's top scientific achievements during the 2025 President's Science and Technology Awards (PSTA) ceremony. The event recognized exceptional contributions to science and technology, showcasing the transformative impact of innovative research on national progress. On 3rd October, President Tharman Shanmugaratnam honored the recipients, highlighting their dedication to advancing the country's science and technology ecosystem.

Professor Lim Chwee Teck, Director of the NUS Institute for Health Innovation & Technology (iHealthtech) and a faculty member in the Department of Biomedical Engineering at NUS's College of Design and Engineering, were awarded the prestigious President's Science and Technology Medal (PSTM). Additionally, **Adjunct Professor Lisa Ng** from the Department of Biochemistry at NUS Yong Loo Lin School of Medicine and the Emerging Infectious Disease Programme at Duke-NUS Medical School received the **President's Science Award (PSA)** for her significant achievements.

Administered by the Singapore National Academy of Science, the **Young Scientist Award (YSA)** is presented to researchers aged 40 and below, who are actively engaged in R&D in Singapore, and who have shown great potential to be world-class researchers in their respective research fields. **Assistant Professor Andy Tay**, Presidential Young Professor at CDE's Department of Biomedical Engineering and Principal Investigator at iHealthtech and NUS Tissue Engineering Programme is honoured for his accomplishments in biomedical research.

Prof Tan Eng Chye was conferred the **President's Science and Technology Medal (PSTM)** for his transformative contributions in advancing Singapore's research and innovation landscape through interdisciplinary education, international partnerships, deep tech innovation and ecosystem building. He was also recognised for his achievements in nurturing future leaders and elevating Singapore's global standing in science and technology.

Prof Tan has also played a significant role in shaping Singapore's S&T ecosystem through his leadership capacities across national agencies, including the NRF, Singapore Economic Development Board, National University Health System, NUS

High School of Mathematics and Science, Agency for Science Technology and Research (A*STAR), Defence Science and Technology Agency, and Defence Science Organisation.

Research on cancer metastasis and mechanoresilience: a revolutionary approach

Professor Lim Chwee Teck was awarded the President's Science Award (PSA) for his pioneering contributions to cancer research through innovative mechanobiology approaches, successfully bridging engineering, biological sciences and medicine to foster a deeper understanding of cancer metastasis.

Prof Lim's trailblazing research resulted in a paradigm shift in our understanding of cancer metastasis – the spread of cancer from the primary tumour site to other parts of the body – which is the leading cause of cancer mortality.

Prof Lim is also a serial entrepreneur, having co-founded six start-ups, including one that commercialised a cancer biochip and achieved a successful IPO in 2018. This cancer biochip earned him the President's Technology Award in 2011.

At NUS, Prof Lim serves as Director of iHealthtech, where he leads multidisciplinary teams to drive advances in healthcare. He also holds appointments in multiple departments and units in the university, including the Department of Biomedical Engineering of CDE and Mechanobiology Institute.

His work introduced the concept of “mechanoresilience”, unveiling why only a small population of cancer cells survive the treacherous journey through the blood circulatory system. Using custom-made microfluidic platforms to simulate the extreme physical and mechanical conditions, Prof Lim and his team identified the distinctive characteristics of these mechanoresilient cancer cells that confer survival advantage and treatment resistance. These revolutionary findings pave the way for more innovative and effective cancer treatment and better diagnostic tools to predict and address metastatic risk.

Pioneering research into the Chikungunya Virus and Pandemic Preparedness:

Adjunct Professor Lisa Ng, who is also Executive Director at A*STAR's Infectious Disease Labs and Biomedical Research Council, earned the President's Science Award (PSA) for her pioneering contributions to viral infection immunology and advancing global pandemic management through groundbreaking research on Arboviruses, in particular, Chikungunya.

Chikungunya virus is an Arbovirus, a type of virus transmitted by arthropods such as mosquitoes. Initially overshadowed by dengue, Prof Ng was amongst the first to underscore the threat of Chikungunya. Her team's work revealed the viral mechanism that explained patients' conflicting reactions to the infection and identified immune profiles that predict disease outcomes. These valuable insights opened the door to improved immune-based diagnostics, vaccines and host-based therapeutics to better tackle the spread of Chikungunya.

Prior to Chikungunya, Prof Ng also developed PCR-based tests for the 2003 SARS outbreaks, and H5N1 during the 2005–2006 bird flu outbreaks. Her molecular and immunoassays for multiple pathogens have been shared globally. During the COVID-19 pandemic, her team's work guided national vaccination strategies and safety measures.

Prof Ng is a leading advocate for pandemic preparedness who translates lab discoveries into real-world solutions through her close collaborations with academia, public health agencies, industry and global research networks. Her leadership has strengthened surveillance systems, informed vaccine pipelines and advanced international cooperation.

Innovative Biomaterials: Enhancing Cancer Immunotherapy and Diabetic Healing:

Assistant Professor Andy Tay was presented the Young Scientist Award (YSA) for advancing biomaterial-based therapies that modulate immune responses to improve diabetic wound healing and enhance cancer immunotherapy outcomes.

To promote wound healing in diabetic patients, Asst Prof Tay's team established a 4R (Remove, Reprogram, Replace, Reimagine) strategy that generates an optimal amount of an essential immune cell. In preclinical models, this 4R strategy demonstrated accelerated wound healing by up to 200% compared to existing therapies.

As for the development of cancer immunotherapies, Asst Prof Tay's lab team engineered nanostraws – hollow tubes about 10,000 times smaller than a grain of rice – to deliver proteins, RNA and DNA that genetically enhance the ability of immune T cells to detect and destroy cancer cells.

A prolific scientist and devoted educator, Asst Prof Tay has garnered more than S\$8.5 million in research funding as the sole principal investigator, filed 7 invention disclosures, and published 32 research papers as the corresponding author. Meanwhile, his lab has trained 19 postdoctoral researchers and research assistants, 22 graduate students and 40 undergraduate students.