PRESIDENT'S SCIENCE AWARD 2025

Lisa Ng

Executive Director, A*STAR Infectious Disease Labs and Biomedical Research Council, A*STAR

"For her pioneering contributions to viral infection immunology and advancing global pandemic management through groundbreaking research on Arboviruses, in particular, Chikungunya."

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Professor Lisa Ng is a world-leading scientist in infectious disease research, renowned for her discoveries in viral infection immunology and leadership in strengthening global pandemic preparedness. Her passion for infectious diseases began as a young researcher, witnessing the devastating effects of outbreaks on communities and healthcare systems. The 2003 SARS outbreak was a turning point, motivating her to study virus–immune system interactions and develop better tools for detecting, managing, and preventing infectious diseases.

Prof Ng's research has produced significant discoveries that reshaped the field. Early in her career, she played a critical role in developing one of the world's first diagnostic kits for SARS, enabling rapid detection at a time when speed meant saving lives. Her work has since expanded to a wide range of viral infections, focusing on the immune responses shaping disease course and severity. Through advanced immuno-monitoring technologies, she has identified biomarkers showing how patients' immune systems respond to infections and vaccines, providing insights that inform better clinical interventions and public health strategies.

A major area of her pioneering research is on arboviruses, viruses transmitted by arthropods such as mosquitoes. Prof Ng was among the first to raise the alarm on Chikungunya virus, once overshadowed by dengue and now a growing threat. Her team's research uncovered how the virus triggers both protective and damaging immune responses, explaining why some patients recover quickly while others suffer prolonged joint pain. She identified immune signatures predicting disease outcomes, paving the way for improved diagnostics, vaccines, and therapeutics. These contributions advanced understanding of Chikungunya and improved outbreak response.

Beyond arboviruses, Prof Ng has led significant translational breakthroughs. She developed PCR-based assays for H5N1 during the 2005–2006 bird flu outbreaks, and her molecular and immunoassays for multiple pathogens have been shared globally. During COVID-19, her team's data guided national vaccination strategies and safety measures, while her diagnostic assays supported the public health system. After borders reopened, they studied vaccine booster effectiveness. As Executive Director of the A*STAR Infectious Diseases Labs, she established the A*STAR's High Containment Biosafety Level 3 (BSL-3) Facility for safe study of high-risk pathogens. These milestones strengthened Singapore's preparedness and resilience against future crises.

Prof Ng is also a strong advocate for pandemic preparedness. Drawing on lessons from SARS, Zika, and COVID-19, she has worked closely with academia, public health agencies, industry, and research networks worldwide to translate laboratory findings into real-world solutions. Her leadership has strengthened global surveillance systems, informed vaccine pipelines, and enhanced international collaboration, including a strategic alliance with Institut Pasteur Paris via a Memorandum of Understanding (2024) and Master Research Collaboration Agreement (2025) to address global health priorities.

Equally remarkable is her commitment to mentorship. Prof Ng believes the future of infectious disease research depends on building the pipeline of scientific talent and equipping young scientists with technical expertise and resilience. She has supervised more than 20 PhD students and postdoctoral fellows, many now leading their own research programmes worldwide.

The breadth of her contributions is recognised through numerous accolades. She is a fellow of the Singapore National Academy of Sciences, an elected member of the Henry Kunkel Society, recipient of the Public Administration Medal (Silver), and regularly serves in scientific advisory roles and national taskforces. She has been named a Highly Cited Researcher by Clarivate and one of the Top 2% Scientists Worldwide by Stanford University for several years, with nearly one-third of her work ranked among the top 10% most cited globally.