

**PRESS RELEASE**

**30 May 2023**

**Hilleman Laboratories Partners A\*STAR to Develop a Nipah Virus Vaccine using Circular RNA Technology**

*The collaboration also aims to prove that circular RNA can be used as an option for cheaper and more accessible vaccines in order to meet global public health needs*

**SINGAPORE, May 30, 2023** – Hilleman Laboratories and the Agency for Science, Technology and Research (A\*STAR) today announced a collaboration to explore using novel circular ribonucleic acid (circRNA) technology to develop a Nipah virus vaccine and to validate the technology platform for application to other infectious diseases pathogens. The collaboration is expected to enable the development and manufacturing of more accessible RNA vaccines, especially for developing countries. The initiative taps on Singapore's biotech capabilities and role in global efforts around novel vaccine development and manufacturing.

The research project will examine the viability of a circRNA vaccine, an investigational form of RNA vaccine technology that offers potential benefits such as flexibility in changing virus strains within the vaccine when necessary to respond faster to changing disease outbreak conditions. Unlike vaccines made with more complex traditional technology such as protein subunit vaccines, an RNA vaccine only requires the genetic code of a protein of interest during development, which allows for rapid production in any future pandemic scenarios.

Researchers from Hilleman Laboratories and A\*STAR's Genome Institute of Singapore (GIS) as well as Bioprocessing Technology Institute (BTI) will design and test different circRNA constructs to prove that the technology works as a vaccine precursor. The study will also confirm the technology's attributes such as better stability at regular fridge temperatures (2 to 8 degrees Celsius), better and longer lasting immune response, and potentially less need for booster doses compared to the current commercial mRNA vaccines.

"A\*STAR's capabilities in mRNA and delivery that targets immune cells can advance the development and manufacturing of circular RNA vaccines. Additionally, leveraging



technology can address storage and cost challenges facing distribution, enhancing Singapore's preparedness against future pandemics.” said Prof Ng Huck Hui, Assistant Chief Executive, Biomedical Research Council (BMRC), A\*STAR.

“The value of RNA vaccine technologies has been demonstrated with success of COVID-19 vaccines and the technology is being expanded for other vaccines including cancer. We believe the collaboration with A\*STAR will bring us closer towards establishing circular RNA as a platform that would enable the development of many vaccines to meet urgent global public health needs and address issues such as thermostability, and potentially eliminate the need for complex cold chain requirements for more effective prevention and management of disease outbreaks,” said Dr Raman Rao, Chief Executive Officer, Hilleman Laboratories.

This collaboration is an important milestone for Hilleman Laboratories Singapore since the start of its operations in April 2021 and reflects its efforts in leveraging the rich local ecosystem for novel technology platforms to develop safe, effective and low-cost vaccines that are more easily accessible for low- and middle-income countries. It also represents Hilleman Laboratories’ continued efforts to collaborate with partners in the local ecosystem to work on cutting-edge vaccine innovation, strengthening Singapore’s position as a hub for vaccine research and development in the region.

The project is focused on the Nipah virus, a major public health concern identified as a priority by the World Health Organization. The virus is transmitted from animals to humans through direct contact with the animals and aerosol droplets, and between humans. It has a fatality rate of 40% to 75%<sup>i</sup>. Due to the absence of medications to treat patients infected by the virus, treatment is focused on providing supportive care<sup>ii</sup>.

### **About Hilleman Laboratories**

Hilleman Laboratories was established in 2009 as a joint venture between Merck Sharp & Dohme LLC (MSD), a global research-driven pharmaceutical company and Wellcome Trust, a global charitable foundation dedicated to human and animal health. Hilleman Laboratories’ mission is to develop affordable vaccines and biologics against infectious diseases that affect low- and middle-income countries.

The company’s expertise in end-to-end product development is targeted at creating novel vaccines and biologics in areas of high unmet need as well as adapting existing vaccines and biologics with more effective delivery tools to meet challenging environments in developing countries. Hilleman Laboratories also seeks to collaborate

with local, regional, and global partners and stakeholders, including policymakers and governments, to facilitate wider, affordable access to life-saving vaccines and biologics.

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<sup>i</sup> [Nipah virus \(who.int\)](https://www.who.int). Last accessed: 25 May 2023

<sup>ii</sup> [Treatment | Nipah Virus \(NiV\) | CDC](https://www.cdc.gov/nipah). Last accessed: 25 May 2023