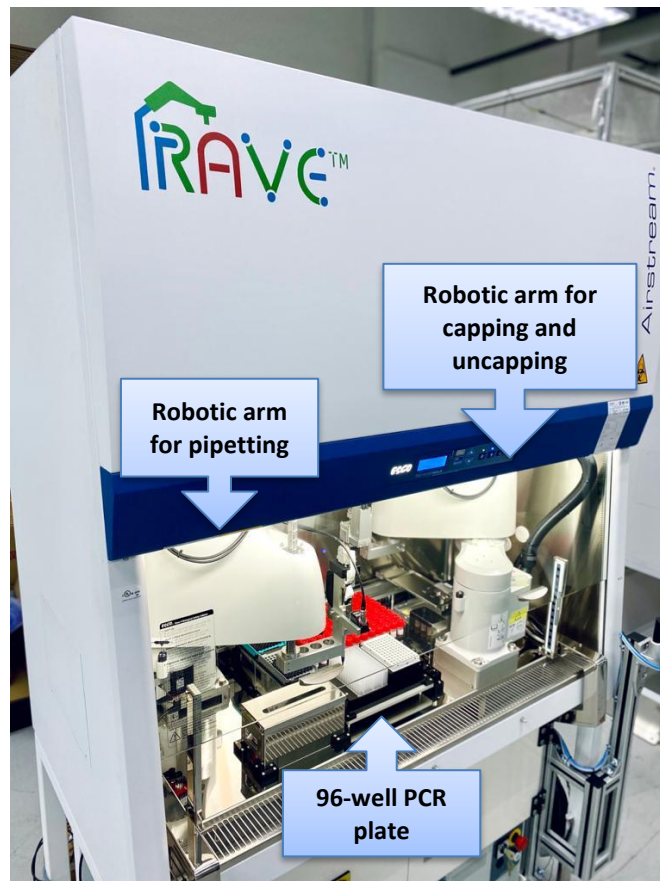


## MEDIA FACT SHEET

**EMBARGOED TILL MONDAY 20 JUL 2020, 1830HRS SGT**

### **A\*STAR DEVELOPS AUTOMATED ROBOTICS SYSTEM FOR RAPID DIAGNOSTICS TESTING IN LABORATORIES**



A\*STAR has successfully developed a laboratory automation system called **Rapid Automated Volume Enhancer (RAVE)**. This system will widen the network of laboratory facilities in Singapore that can quickly and accurately screen patient samples for diseases such as COVID-19, contributing to enhancing national testing capacity. Automation of several processes allows for high accuracy, speed, and enhanced safety for laboratory staff.

While the system can be customised to support a variety of lab activities, it has been optimised for use with the RESOLUTE 2.0 diagnostic test. Overall, when a laboratory uses the RAVE system in combination with RESOLUTE 2.0, **the end-to-end savings in time, manpower and costs are approximately 50%.**

### **How it works:**

- Utilises Industry 4.0 technologies such as robotics and industrial internet of things (IIoT) to process samples.
- Samples identified by barcode scanning.
- Handling of test samples, capping and uncapping of test tubes, as well as pipetting and movement of liquids, are automated with custom-built robotics systems.
- Flexible, scalable, and open system that can work with standard PCR systems worldwide.

### **Benefits:**

- Helps minimise human error, e.g. risk of staff fatigue while pipetting, and reduces contamination and infection risks for laboratory staff, thereby resulting in more accurate, reliable and consistent high-throughput<sup>1</sup> testing.
- Two RAVE units each taking up 1m<sup>2</sup> of laboratory floor space can deliver close to 4,000 RESOLUTE 2.0 test results in a single day.

### **Development and Research Collaboration:**

- RAVE was developed by A\*STAR's Advanced Remanufacturing and Technology Centre (ARTC) and Singapore Institute of Manufacturing Technology (SIMTech). The two research institutes leveraged their expertise in robotics, automation and Industry 4.0 technologies as well as their local industry network.
- The Diagnostics Development (DxD) Hub, a national platform hosted by A\*STAR, also supported the development of RAVE. This included the tech transfer for diagnostics applications, design inputs for both product specifications and optimisation of RAVE for RESOLUTE 2.0, as well as expediting the regulatory strategy and product registration for RAVE.
- Advanced MedTech, a global medical technology leader headquartered in Singapore, will distribute the RAVE system to help healthcare facilities and laboratories ramp up their COVID-19 testing capacities with the RESOLUTE 2.0 tests. ARTC and SIMTech will ramp up the manufacturing of RAVE systems with industry partners to meet local and international demand.
- Sankei Eagle Singapore Pte Ltd is the first local systems integrator for RAVE, fulfilling Advanced MedTech's initial orders.

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<sup>1</sup> "High through-put" method is a faster method which allows a greater number of samples to be processed in the same, or less, time. This can be achieved by working faster, processing multiple samples at once, or simultaneously handling multiple aspects of the same sample.

<https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/high-throughput-screening>

## **Media Contact details**

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## **About the Agency for Science, Technology and Research (A\*STAR)**

The Agency for Science, Technology and Research (A\*STAR) is Singapore's lead public sector R&D agency, spearheading economic-oriented research to advance scientific discovery and develop innovative technology. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit society.

As a Science and Technology Organisation, A\*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by contributing to societal benefits such as improving outcomes in healthcare, urban living, and sustainability.

We play a key role in nurturing and developing a diversity of talent and leaders in our Agency and research entities, the wider research community and industry. A\*STAR's R&D activities span biomedical sciences and physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit [www.a-star.edu.sg](http://www.a-star.edu.sg).

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