Instant COVID Sensor to Prevent Outbreaks and Protect Communities

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An instant COVID-19 sensor made in Australia could help transform day-to-day management of the pandemic, protecting frontline workers and the wider community.

RMIT is collaborating with partners including Melbourne-based biomedical start-up Soterius on the biosensor, which can detect the presence of tiny amounts of the SARS-CoV-2 virus and its variants.

Reliable, accurate and non-invasive, the Soterius Scout sensor can deliver results within a minute to provide the all-clear for someone to enter their work environment or alert them if they need to undertake a medical COVID test and self-isolate.

The successful prototype is now being further developed by Soterius in partnership with RMIT, MIP Diagnostics, the Burnet Institute, D+I and Vestech, towards commercial release early 2022.

The technology will be manufactured in Australia and will initially be delivered to hospitals, with future applications in other essential worker and high-traffic settings including aged care, quarantine hotels, airports and schools.

The Soterius Scout sensor can detect COVID-19 even if someone is asymptomatic, to provide the all-clear for someone to enter their work environment.

Soterius co-founder Dr Alasdair Wood said emerging environmental viral sensors were bulky,

energy intensive and can detect only one type of virus.

“Our biosensor is so small it can fit on a personal fob card and it’s easy to use – you just need to swipe your card over a reader at checkpoints,” Wood said.

“Importantly, one sensor can detect up to 8 viral strains and our technology can be easily adapted to detect new variants or novel viruses as they emerge.

“We hope the Soterius Scout biosensor could be a vital tool for managing COVID-19, providing accurate early detection to prevent outbreaks and avoid the need for future lockdowns.”

Prototype tests conducted at RMIT, in partnership with Burnet Institute, reveal the Soterius Scout biosensor detects SARS-CoV-2 spike protein fragments with impressive accuracy and no false positives.

The technology can detect COVID-19 even if someone is asymptomatic.

Trials also show the sensor has potential to become a top performing diagnostic tool for respiratory illnesses and it is now being scaled to detect other diseases such as influenza and MERS.

Concept image of the Soterius Scout biosensor, fixed to an office wall to detect minute fragments of COVID-19.

The sensor harnesses nanotechnology-enabled biosensors developed by RMIT researchers at its leading-edge Micro Nano Research Facility. The biosensors technology is covered in a patent application filed by RMIT, with the integrated system the subject of a patent

application subsequently filed by Soterius.

RMIT project leader Professor Sharath Sriram said the collaboration would accelerate the translation of RMIT research into vital new technologies.

“As the recent lockdowns across Australia show, COVID-19 is not going away any time soon and we need smart solutions to help us detect the virus and contain outbreaks,” Sriram said.

“It is exciting to see our platform sensor technology at the core of this smart new solution for the management of COVID-19 and other respiratory viruses in workplaces, to help protect our frontline workers and the wider community.”

Expression of interest have recently opened to invest in Soterius.

Read the original article on RMIT University.