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Friday 5 June 2020

World-first research underway into detecting coronavirus in the environment

Researchers at the University of Tasmania, in partnership with GreyScan Pty Ltd, are using the science of trace detection to develop a tool that rapidly and accurately detects coronavirus and other surface viruses in the environment.

The project aims to provide proof-of-concept for the world's first mobile virus detection device, [GreyScan's TVD-1](#), through laboratory research that will develop the chemistry needed to identify SARS-CoV-2 in the field.

This initial study is supported by \$260,000 in co-funding from the CSIRO Innovation Connections Grant scheme and industry partner GreyScan Pty Ltd.

University of Tasmania [ACROSS](#) Director Professor Michael Breadmore said the project expanded on the [trace explosives detection technology](#) invented by his team and commercialised, manufactured and deployed by GreyScan.

"Fifteen years ago, we were asked to rapidly detect explosives and reduce a 30-minute process to 30 seconds, to help make Australia and the world safer, which we were able to do with GreyScan," Professor Breadmore said.

"We will use what we learnt about how to do chemistry exceptionally quickly and apply this to virus detection. Our research will develop a way to collect, analyse and detect viruses from surfaces within a few minutes.

"It is not possible to implement existing diagnostic approaches in a time that is suitable for rapid screening. Our approach is truly unique in the world and the diagnostic space."

Studies have found that [SARS-CoV-2 remains viable on surfaces for many days](#), dependent on the surface, and asymptomatic carriers of the virus may continue to shed viral loads that can cause sickness in others.

There is significant need for environmental testing for COVID-19 to determine whether hospitals, schools, surfaces and personal protective equipment are clear of the virus. There are no current means to check how effective cleaning protocols are or to know whether the virus is present or not.

GreyScan Pty Ltd Chief Executive Officer Samantha Ollerton said the research represented the first step towards developing the TVD-1, which could be used to detect the virus in airports, public transportation systems and places of mass gatherings, as well as being deployed in the testing of people.

“Through our technology and the development of the TVD-1, GreyScan’s goal is to enable the public to feel safe again and be able to return to their normal routines. It is critical to be able to demonstrate that cleaning or decontamination protocols have been followed and to encourage trust back into society,” she said.

“The use of contact tracing and people testing will be augmented by the capability of the TVD-1, providing fast, accurate detection that can be used by anyone anywhere. This is a product for the future fight against this and any other viruses that we encounter in our lifetimes.”

The research will take place in the University of Tasmania’s lab facilities, where Professor Breadmore will be joined by a team of researchers who will develop biosensors to help detect the virus.

Professor Anna King explained that biosensors played an important role by binding to and detecting viruses such as SARS-CoV-2.

“We will be developing multiple types of biosensors that can bind to the virus in different ways, as well as the systems that best allow us to detect even the smallest amounts of the virus,” Professor King said.

This project is a collaboration between the University of Tasmania’s College of Sciences and Engineering and College of Health and Medicine with industry partner Grey Scan Pty Ltd.

MEDIA RESOURCES:

Professor Michael Breadmore interview and laboratory B-roll:

cloudstor.aarnet.edu.au/plus/s/lo76OCjbgYn0FEv

cloudstor.aarnet.edu.au/plus/s/nd7M0N3wCGjspiQ

Images attached: the University of Tasmania’s Professor Breadmore and PhD candidates Mostafa Adel Atia Abuzeid and Pavan Kumar Chadawalada.

GreyScan’s Samantha Ollerton and Professor Breadmore [interviews and B-roll](#)

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