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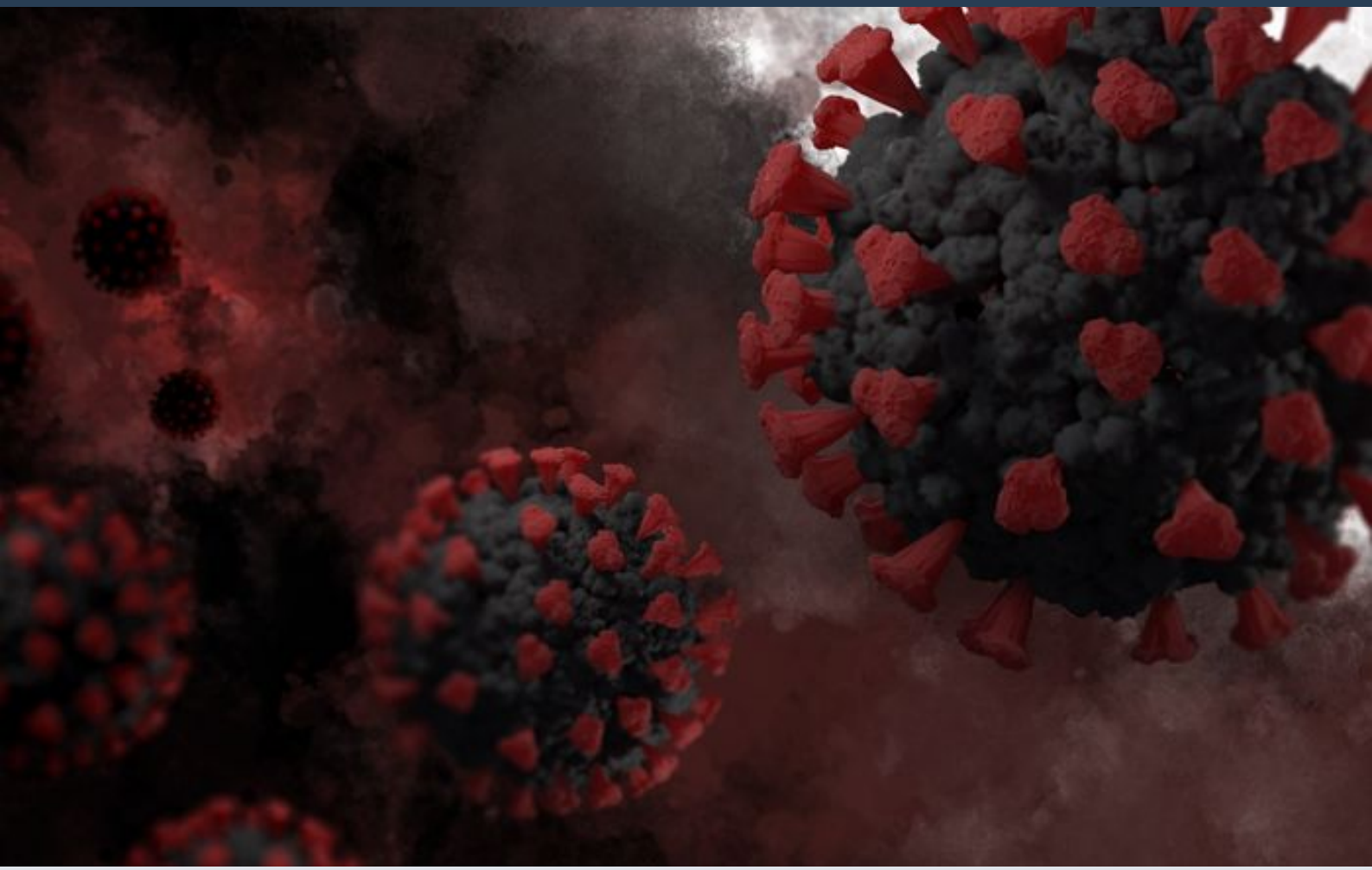
Rapid Diagnostic Test for SARS-CoV-2

Rapid COVID-19 diagnosis using glycanfunctionalised lateral flow device



Please note, header image is purely illustrative. Source: PublicDomainPictures.net, CC0

IP Status

Patent application submitted

Seeking

Licensing, Seeking investment, Development partner

About **University of Warwick**

We are committed to ensuring that our research makes a distinctive, competitive impact on the world. We believe in a collaborative approach to research and education in addressing global challenges and opportunities.

Background

There is currently an urgent global need for point of care diagnostic tests to identify people who are infected with the SARS-CoV-2 virus (Covid-19). Current PCR-based testing requires samples to be shipped to a centralised testing laboratory which means that results typically take 24 hours of more to be confirmed. As the world moves beyond the first pandemic spike and populations emerge from lockdown, there will be an increased need for rapid testing options which can underpin test-trace-isolate strategies.

Tech Overview

The Warwick team have demonstrated that the SARS-CoV-2 spike protein binds to certain glycan (sugar) molecules (Figure 1), that glycan-functionalised nanoparticles can be used to detect the spike protein and that these nanoparticles can be incorporated into a pregnancy test-style lateral flow device diagnostic (Figure 2).

Proof of Concept Data

The technology is at TRL4, having been tested in a laboratory setting. The Warwick team have generated proof of concept data relating to the synthesis of glycan functionalised gold nanoparticles and their use in rapid detection of SARS-Cov-2 virus proteins (Figure 3).

A publication describing the development of the device is available here.

Further details are available under a Confidentiality Agreement.

Benefits

- Delivers rapid, point of care results in ~30 minutes
- Can detect SARS-COV-2, S1 spike protein down to a concentration of ~5 µg.ml-1
- Has no requirement for specialist training or laboratory facilities
- Has undetectable binding to other corona viruses,including SARS-CoV-1

Applications

The patent-pending method would be of interest to companies developing or distributing lateral flow diagnostic tests or any organisation seeking to establish and roll out a rapid testing and stratification strategy.

Opportunity

Warwick Ventures has available for licence, investment or co-development a new, patent-pending method for the rapid identification of the SARS-CoV-2 virus which causes Covid-19.

Patents

- A UK patent application (GB2007895.2) has been filed on the new method and key compositions of matter. The patent and the associated intellectual property are available for licence through Warwick Ventures.
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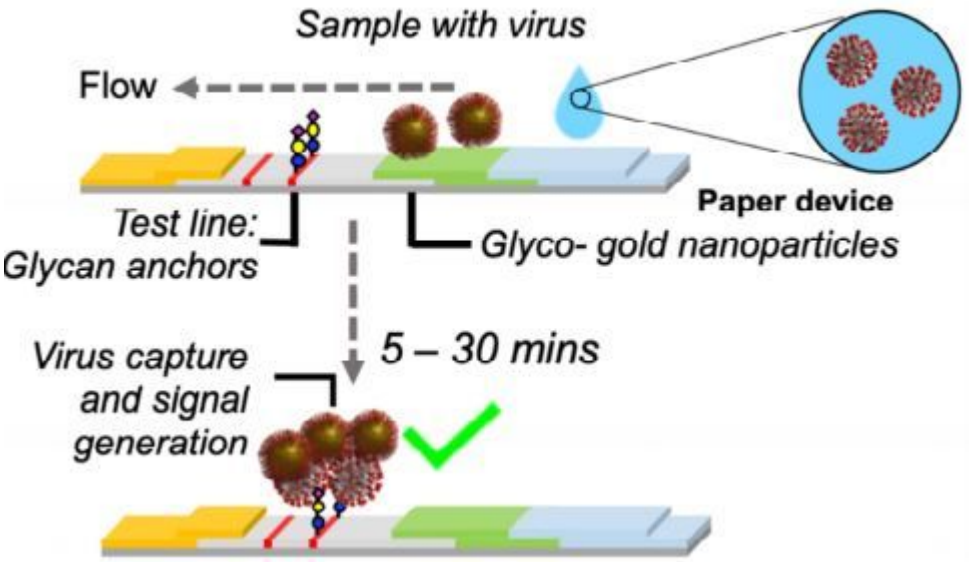
Appendix 1

Figure 1

Schematic of glycan capture lateral flow diagnostic.



Appendix 2

Figure 2

Example of a lateral flow device test format.

Appendix 3

Figure 3

Glycan-functionalised LFD strips are highly selective for SARS-CoV-2. No detection is seen for SARS-CoV-1 or similar coronavirus spike proteins.