COVID-19 DETECTION IN UNDER 20 MINS –
ICENI DIAGNOSTICS OFFERS NEW APPROACH

Coronavirus could be detected using Iceni Diagnostics’ rapid, point-of-care screening
technology, and distinguish it from influenza

The emergence of COVID-19 has exposed a frailty in our ability to rapidly detect and screen
new infectious diseases. Iceni Diagnostics is developing a new approach that identifies the
virus - not by its genetic code, which can mutate, but by using its reliance on chains of sugars
which are constant and unchangeable. The existing prototype product for influenza can
detect the virus in less than 20 minutes and could be adapted to identify other pathogens
such as Coronavirus.

Viruses typically invade the body through cells in the respiratory tract. These cells are
covered in a coat of sugar chains, known as glycans, which are used to recognise beneficial
substances. Viruses can utilise these glycans as part of the infection process. This process
can also be used in reverse to identify the virus in saliva or nasal fluids.

Professor Rob Field, a world expert in glycan science and Director of the Manchester
Institute of Biotechnology, is the co-founder of Iceni Diagnostics, a biotechnology company
based on the Norwich Research Park. The company has developed this diagnostic technique
that uses an artificial glycan receptor to capture the virus.

Professor Field comments: “Right now, everybody is talking about a vaccine for coronavirus
but vaccine development, validation, safety-testing, manufacture, regulatory approval and
deployment is a time-consuming process.

“A low-cost, easy to use screening test that can be performed at the point of care is an ideal
way to limit initial disease transmission in the country or location of origin.

“Current COVID-19 tests are largely based on PCR (polymerase chain reaction) that requires
a laboratory setting for analysis and relies on prior knowledge of the viral genetic code. This
code can change as the virus evolves, limiting the effectiveness of the test.

“The Iceni Diagnostics approach uses glycan recognition, which is unaffected by seasonal
variation in the genetic code, and can be offered as a handheld home or field-based test.”

Iceni Diagnostics has already developed a series of prototype products that can specifically
detect pathogens such as Norovirus and different strains of influenza in less than 20
minutes. The most advanced product, for equine influenza, is performing well in early stage
clinical trials.

The hand-held device uses lateral flow – like a home pregnancy test – to give a simple
yes/no answer. It requires no refrigeration and no training, meaning the test is usable in any
location, by any person, in order to detect flu or other pathogens.
The current Iceni Diagnostics products detect a single virus. However, the next generation of diagnostics will enable the detection and discrimination of a series of pathogens that give rise to similar symptoms. This would enable, for example, a distinction between flu and COVID-19 in a single sample. This increases the versatility and robustness of the diagnosis.

Additionally, the way the virus interacts with its glycan receptor makes it seasonally consistent, so, even if the virus genetic code mutates, it will still be detected – meaning the Iceni Diagnostics’ test should remain effective indefinitely.

Professor Field comments that the device holds huge promise for changing the way we manage global disease: “This new approach, which is based on host-pathogen glycan recognition could potentially result in a more universal detection technique, crucial in early diagnostics of outbreaks.”

Iceni Diagnostics is currently in an investment round to support the validation and roll out the commercial launch of its initial product portfolio. It is also looking at additional funds from EU and BARDA.

In an industry dominated by protein/DNA technology the glycan-based platform offers opportunities for the development of novel medicines and tests. Interested parties are invited to contact Iceni Diagnostics directly at www.icenidiagnostics.com.

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Contacts for media
Rachel Holdsworth/Ewan Richardson, Holdsworth Associates PR
Phone: 01954 202789 or email: Ewan@holdsworth-associates.co.uk

About Iceni Diagnostics www.icenidiagnostics.com
Iceni Diagnostics is developing carbohydrate-based therapeutics and point-of-care diagnostics for infectious diseases.

The company was co-founded by Professor Rob Field CEO, project leader at John Innes Centre, Honorary Professor of Chemistry at UEA and President of the Chemistry Biology Interface Division of the Royal Society of Chemistry, and Professor David Russell CSO, Emeritus Professor of Chemistry at UEA and founder of Intelligent Fingerprinting.

Associated Publications:
DOI:10.1039/c3ob41703d