



ASX Announcement

For immediate release

5 June 2020

Partnership with the University of Queensland and CEPI to advance development and manufacture of COVID-19 vaccine candidate

(ASX:CSL; USOTC:CSLLY) Please find attached a media statement released today regarding a partnering agreement CSL has entered into with the University of Queensland and CEPI to accelerate the development, manufacture and distribution of a COVID-19 vaccine candidate

This media statement is provided to the ASX for the information of all CSL's shareholders and contains no price sensitive information.

Authorised by
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MEDIA RELEASE

The University of Queensland, CEPI and CSL partner to advance development and manufacture of COVID-19 vaccine candidate

- *CSL appointed Trusted Manufacturer for University of Queensland's "molecular clamp" enabled COVID-19 vaccine candidate*
- *CEPI and CSL will share costs associated with the clinical development and manufacture of the vaccine candidate*
- *A vaccine is anticipated to be available in 2021 if clinical trials are successful*

June 5, 2020, Oslo, Melbourne and Brisbane — CEPI, the Coalition for Epidemic Preparedness Innovations, CSL (ASX:CSL) and The University of Queensland (UQ) today announced that they have entered into a new, significant partnering agreement to accelerate the development, manufacture and distribution of a COVID-19 vaccine candidate which has been pioneered by researchers at UQ. The agreement formalises the support provided by CSL to UQ and CEPI from the outset of the pandemic earlier this year.

CEPI and CSL will fund the development and manufacture of UQ's "molecular clamp" enabled vaccine for COVID-19. Funding contributions will be used to provide support for the pending phase 1 safety study being led by UQ followed by subsequent late stage clinical trials, and industrial-scale manufacturing to allow the production of potentially millions of doses a year, should the product be approved.

The initial phase of large-scale production of the UQ COVID-19 vaccine is planned to take place at CSL's biotech manufacturing facilities in Melbourne, Australia. While there are a number of critical milestones to be met before the vaccine can be considered successful, CSL anticipates that the production technology can be scaled to produce up to one hundred million doses towards the end of 2021. CSL would also subcontract other global manufacturers to increase the number of doses that can be produced and broaden the geographical distribution of vaccine production.

Should clinical trials be successful, a vaccine could be available for distribution in 2021.

The "molecular clamp" vaccine platform

CEPI entered into a framework agreement with UQ in January 2019 to provide up to US\$ 10.6 million to develop a rapid response "molecular clamp" vaccine platform, a transformative technology patented by UniQuest, UQ's technology transfer company that enables rapid vaccine design and production against outbreak viral pathogens. In January 2020, CEPI expanded its partnership with UQ to use their rapid response molecular clamp vaccine platform to produce a vaccine candidate for COVID-19. UQ is now aiming to take the vaccine candidate into a phase 1 clinical trial in July.

Enveloped viruses have proteins on their surface that drive fusion of the virus and host cell membranes, a key process in infection. These proteins are also the major target of a protective immune response. Although they are able to induce an immune response, they are inherently unstable and can change shape when expressed on their own. This means that the immune response induced does not efficiently recognise the protein on the virus surface and so does not provide protection from subsequent infection.

UQ has overcome this problem by using their proprietary "molecular clamp" technology that locks the unstable, prefusion version of the surface proteins in a form that allows the immune system to respond more effectively. This is achieved using their proprietary "molecular clamp" technology that

locks these proteins in their native virus surface form. This synthetic protein can then be purified and rapidly manufactured into a vaccine.

Most recently, [early preclinical results](#) of the UQ COVID- 19 vaccine candidate showed that it produced high levels of antibodies that can neutralise the virus.

The UQ COVID- 19 vaccine will be combined with Seqirus' well- established adjuvant technology – MF59® to improve immune response, reduce the amount of antigen needed for each vaccine, and enable more doses to be manufactured more rapidly.

Allocation and distribution

Under the agreement, the allocation of doses between CEPI and CSL is linked to their relative contribution to overall project costs. Should the UQ COVID- 19 vaccine be successful, 100% of CEPI's vaccine allocation will be distributed through the COVID - 19 Vaccine Global Access Facility, an instrument of the Vaccines pillar of the [ACT Accelerator](#) within which CEPI works in partnership with Gavi and the World Health Organisation. CSL's allocation will be used, at a minimum, to support its long - standing biosecurity commitment to the Australian community as well as other key groups, such as its regional neighbours. CSL has granted CEPI a first right of refusal to any surplus doses, to be distributed through the COVID- 19 Vaccine Global Access Facility.

CEPI's vaccine portfolio

To date, CEPI has provided initial support and funding to [Curevac, Inc.](#), [Inovio Pharmaceuticals, Inc.](#), [Moderna, Inc.](#), [Novavax, Inc.](#), [The University of Queensland](#), [The University of Hong Kong](#), [The University of Oxford](#), and a consortium led by [Institut Pasteur, and Clover Biopharmaceuticals](#) to develop COVID- 19 vaccine candidates.

Richard Hatchett, CEO of CEPI, said:

“This significant partnership between CEPI, UQ and CSL is an important milestone in the development of UQ's promising COVID- 19 vaccine candidate. The partnership will enable the rapid development of the vaccine candidate through clinical trials, and by investing in large- scale manufacturing capacity now, we can reduce the time needed to deliver millions of doses of the UQ vaccine to those who need them most if it proves to be safe and effective.”

Jane Halton, Chair of CEPI, said:

“This is an important step forward in our battle against this virus. We know that the only way to beat this pandemic is through collaboration, across countries and also across sectors. We also know that we cannot afford to wait until we know whether a vaccine works before ensuring we can produce it at scale. This partnership will benefit enormously from CSL's experience and capabilities in vaccine development and large- scale manufacturing, which is why this is such an important development. If this vaccine is successful, the partnership model we have established will enable CEPI to provide a significant number of doses to the COVID- 19 Vaccine Global Access Facility for those who need them most, while allowing CSL to fulfil its own long- standing biosecurity commitments.”

Professor Andrew Cuthbertson, CSL's Chief Scientific Officer, said:

“We are very pleased to be able to provide our scientific expertise and platform technologies to make a strong contribution to this critical joint effort with CEPI, the University of Queensland and others. The devastating toll COVID- 19 has inflicted on the world is being countered by an extraordinary effort from scientists who have crossed borders and boundaries to collaborate, pool together their resources and make progress at a rate not seen before.

“CSL will contribute to UQ's promising vaccine with our proprietary adjuvant, MF59, made by Seqirus, along with expertise in process science and scale- up from our Australian facilities, managing advanced clinical trials and the large- scale manufacture of the recombinant vaccine. Should trials be successful, this vaccine holds the potential to provide protection against this urgent public health emergency for Australians and those around the world vulnerable to this devastating virus.”

Professor Peter Hoj, Vice-Chancellor and President of the University of Queensland, said:

"We are absolutely delighted at the speed with which we have been able to reach this critical juncture, and off the back of positive results from our early preclinical studies. This accelerated timeframe, hitting the key milestones in the development of the UQ vaccine, would not have been possible without CEPI, our partners and additional funding assistance from the Queensland State Government (\$10m), the Federal Government (\$5m) and philanthropic partners. Having CSL, an Australian-based global biotech leader, take our vaccine forward is a fantastic result for the dedicated research team who have worked tirelessly since January on this project, which will benefit Australians and the world."

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About CEPI

CEPI is an innovative partnership between public, private, philanthropic, and civil organisations, launched at Davos in 2017, to develop vaccines to stop future epidemics. CEPI has moved with great urgency and in coordination with WHO in response to the emergence of COVID-19. CEPI has initiated 9 partnerships to develop vaccines against the novel coronavirus. The programmes will leverage rapid response platforms already supported by CEPI as well as new partnerships. The aim is to advance COVID-19 vaccine candidates into clinical testing as quickly as possible.

Before the emergence of COVID-19 CEPI's priority diseases included Ebola virus, Lassa virus, Middle East Respiratory Syndrome coronavirus, Nipah virus, Rift Valley Fever and Chikungunya virus. CEPI also invested in platform technologies that can be used for rapid vaccine and immunoprophylactic development against unknown pathogens (Disease X).

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About the University of Queensland

UQ rates in the global top 50 as measured by the QS World University Rankings, US News Best Global Universities Rankings and CWTS Leiden Rankings. The inventors of the patented molecular clamp technology Professor Paul Young, Associate Professor Keith Chappell, and Dr Dan Watterson have extensive expertise in molecular virology, viral pathogenesis and vaccine research.

About CSL

CSL (ASX:CSL) is a leading global biotechnology company with a portfolio of life-saving medicines, including those that treat haemophilia and immune deficiencies, as well as vaccines to protect communities from seasonal influenza and global influenza pandemic threats. CSL — including our two businesses, CSL Behring and Seqirus — provides life-saving products to more than 60 countries and employs over 25,000 people. For more information about CSL Limited, visit www.csl.com

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