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Australia takes aim at next pandemic threat with new vaccine platform

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University of Queensland vaccine developers upgrade molecular clamp technology for use against Disease X



Norway-based CEPI, the Coalition for Epidemic Preparedness Innovations, is to put $5.7 million (AU$8.5 million) into the development of Australia-based University of Queensland's (UQ's) second-generation molecular clamp vaccine platform aimed at combating the next Disease X.

The money will fund Phase I testing of the promising technology for potential use in the global response to future disease outbreaks, including outbreaks caused by novel pathogens.

The "molecular clamp" technology works by "locking" viral proteins, involved with infection and cell entry, into a shape that allows for an optimal immune response. Before the invention of this technology, "locking" the shape of viral proteins was very difficult to achieve.

This process requires the sequence of the viral protein, which can be determined from its genome and is then coupled with an optimised "clamp" sequence. The resulting synthetic antigen can then be purified and rapidly manufactured into a vaccine.

The UQ team has also designed a second-generation version of their SARS-CoV-2 vaccine using this upgraded molecular clamp technology and will soon begin Phase I testing to demonstrate safety and benchmark immunogenicity against approved COVID-19 vaccines. This study is designed to prove the underlying concepts, safety, and immunogenicity of the upgraded molecular clamp technology only.