

Closing in on COVID-19 vaccine

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South Australian researchers working with Oracle Cloud technology and vaccine technology developed by local company Vaxine Pty Ltd are testing a vaccine candidate against the SARS-CoV-2 coronavirus responsible for the COVID-19 pandemic.

The team is headed by Nikolai Petrovsky, Flinders University Professor and Research Director at Vaxine.

His team has tapped Oracle for technical collaboration, access to an expanded research community, and cloud infrastructure that helped enable the rapid design of the novel COVID-19 [vaccine candidate](#).

"The vaccine has progressed into [animal testing](#) in the US and, once we confirm it is safe and effective, will then be advanced into [human trials](#)," says Professor Petrovsky—stressing expectations shouldn't be elevated until all testing is completed.

The latest cloud-based technology provided by Oracle enabled the team to "dramatically speed up our ability to analyse the COVID-19 virus and use this information to design the vaccine candidate".

"As soon as the genomic sequence of COVID-19 became available in January, we immediately used this, combined with our [previous experience](#) in developing a SARS coronavirus vaccine, to characterise the key viral attachment molecule called the spike protein," Professor Petrovsky says.

"We used computer models of the spike protein and its human receptor, ACE2, to identify how the virus was infecting [human cells](#), and then were able to design a vaccine to block this process," he says.

Flinders University Associate Professor Dimitar Sajkov, a respiratory physician in South Australia, has been involved in conducting previous human trials of the team's pandemic vaccines and hopes to similarly lead clinical trials of this new COVID-19 vaccine candidate.

"The team has exploited the very latest technologies, including AI, advanced manufacturing and Cloud computing to accelerate vaccine design, shaving years off normal development timeframes," Professor Sajkov says.

"We achieved great results with Vaxine's swine flu vaccine developed during the 2009 swine flu pandemic, where we commenced clinical trials of a vaccine within 3 months of discovery of the virus. We hope to achieve similar results with their COVID-19 vaccine candidate when it is ready for human testing" he says.

Provided by Flinders University

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