

## - Vaccination

# MRNA vaccine a step closer

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A Timaru bio-tech company, and its research partners, are another step closer to New Zealand producing its own mRNA vaccines after the arrival of a \$1 million machine – the first of its kind in the country. Minister of Research, Science and Innovation, Dr Megan Woods, said at the launch of the machine at South Pacific Sera in Washdyke yesterday it was “fantastic” to see the Government’s investment and research community and industry sector come together to get opportunities for New Zealand.

“It is satisfying and inspiring,” Wood said. “It’s fantastic to see. I’m not surprised this is in Timaru [the machine]. South Pacific Sera has built its core strength in animal vaccines. New Zealand has amazing vaccination capability and has been a world leader in animal vaccinations.”

The machine has been funded by private donors to the Malaghan Institute of Medical Research, a bio-medical research institute that is part of the Vaccine Alliance Aotearoa New Zealand – Ohu Kaupare Huaketo (Vaanz).

South Pacific Sera is part of that consortium, working with the institute, and Otago and Victoria universities, Avalia Immunotherapies, ESR and AgResearch, as well as a number of local and international collaborators to research and develop a Covid vaccine in, and for, New Zealand and the Pacific.

The machine, called a NanoAssembler Blaze, is used to produce lipid nanoparticles (microscopic balls of fat) to protect mRNA (messenger ribonucleic acid) which is genetic material used in vaccines, clinical medicines and research.

In the case of the Pfizer Covid19 vaccine, the mRNA is genetic material that tricks the body into making the virus protein itself. This helps the immune system develop antibodies to fight the virus when it comes across it again.

mRNA are fragile, so the lipid nanoparticles protect it from being destroyed as it is put into the cells where it is unloaded.

South Pacific Sera co-founder and co-director Dr William Rolleston said the machine added a new capability for the company’s GMP (Good Manufacturing Practices) vaccine manufacturing infrastructure.

“Covid-19 vaccines are just the tip of the iceberg for what this technology offers, with enormous potential for therapeutic development not just for human medicine but also across the primary sector,” Rolleston said.

Director of Malaghan Institute and the Vaanz Programme professor Graham Le Gros said the arrival of the technology marked a significant step towards New Zealand producing its own mRNA vaccines and other RNA therapeutics in the future.

“The Blaze will allow us to bridge the gap between lab research and clinical development,” he said.

“It is just the start of the RNA nanomedicine pipeline we envisage for New Zealand – to translate mRNA and RNA research and development into homegrown vaccines and therapeutics.”

He said it could lead to providing a platform for vaccine security for New Zealand and offer a rapid response to future pandemics, which was Vaanz’s goal since it was first funded by the Government in 2020 to lead Covid-19 research in New Zealand.

The machine’s first job will be on a pilot mRNA Covid-19 vaccine

Vaanz has under development.

Le Gros said Vaanz’s aim was to take the vaccine into human clinical trials “to develop local capability and inform how we build New Zealand’s mRNA infrastructure”.

Timaru District mayor Nigel Bowen, who was at the launch, said it showed Timaru’s regional capability.

“It’s nice to be in the forefront of research and development. It’s another win for Timaru.”