

Solving a hidden threat to New Zealand's meat and dairy industry

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Associate Professors Bridget Stocker and Mattie Timmer from Victoria University of Wellington are working with AgResearch to help address this problem, developing vaccines to help prevent ovine pneumonia, with

promising early results.

This is the next step in an ongoing project for the University researchers, who have spent the past few years developing a new class of [vaccine](#) adjuvant—which is an additive to a vaccine that improves the host's immune response and increases vaccine efficacy. During the development of this adjuvant class, the researchers, along with their Ph.D. student Amy Foster, worked with Professor Sho Yamasaki from Japan, one of the world's foremost experts in immunology.

"To have an effective vaccine, you need the right adjuvant for the right pathogen," Associate Professor Stocker says. "There is a gap in the market for adjuvants that elicit a strong cellular immune response in addition to an antibody-mediated response. This is a need we are addressing."

The adjuvant created at Victoria University of Wellington activates a specific immune pathway. This pathway is related to a number of human diseases, such as meningitis and tuberculosis, but it is also related to the pathogens that cause ovine pneumonia.

With the help of Viclink, the University's commercialization arm, and funding from the Ministry of Business, Innovation, and Employment, Associate Professors Stocker and Timmer connected with Drs Neil Wedlock, Natalie Parlane and Axel Heiser from AgResearch, experts in animal vaccines.

"We hadn't initially considered our adjuvant in relation to animal vaccines, but Viclink suggested this as a possible commercialization pathway," Associate Professor Stocker says. "So far our early trials show a lot of promise, and we're very excited about the next steps."

"We spend a long time undertaking basic research to understand how

particular classes of molecules interact with the immune system. It's great to be able to take this knowledge from an academic setting to one that could help solve a major issue in the New Zealand farming industry."

So far, the research team have worked to refine their adjuvant in the laboratory and develop a vaccine for use in sheep. They have completed the first phase of testing and will enter the second phase over the coming months.

"In the first proof-of-concept trial the [adjuvant](#) performed as good as, if not better than, currently available adjuvants," Associate Professor Timmer says. "It is still early days, but it bodes well for future testing.

"Science is never straightforward—if it were there would be no problems left to solve—but we are quietly optimistic, and early indicators suggest we are heading in the right direction."

Jeremy Jones, Senior Commercialisation Manager at Viclink, says he is very excited to be working with the team to progress their technology towards market.

"Each set of results we get makes us more excited about this project," Jeremy says. "The team they have assembled makes our job much easier, as we have all of the expertise we need to generate a very strong data package, and the involvement of the team at AgResearch has accelerated this project, allowing us to gather data in a large animal to bolster the laboratory work done here at the University.

"On a recent trip to the US to engage with the animal health market it was clear that there is an imperative from these companies to find technologies that enabled the reduction or elimination of antibiotics from the food-chain. An effective vaccination program and use of

immunostimulants such as these developed by Associate Professors Stocker and Timmer and their team are the best line of defense for the industry."

Provided by Victoria University of Wellington

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