

Media Release

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Footrot vaccine closer than ever

Monash University scientists have started clinical trials to find a successful vaccine against footrot in sheep.

The trials have been made possible with funding of \$663,000 from Australian Wool Innovation (AWI)

The trials over three years are taking place at Monash University's Australian Research Council Centre of Excellence in Structural and Functional Microbial Genomics and the University of Sydney.

Chief investigator Professor Julian Rood said it was an exciting development for his team of researchers.

"The trials are the culmination of 8 years of collaborative work on the pathogenic bacterium which causes footrot, *Dichelobacter nodosus*. We have determined the bacterium's complete DNA sequence, which was then analysed to identify proteins that are potentially exposed on the surface of the causative bacterium and therefore more likely to elicit an immune response," Professor Rood said.

"The approach, called reverse vaccinology, identified 90 proteins in the footrot bacterium that are potential antigens for a new cross-protective vaccine. This funding will allow us to pinpoint those proteins that will target the disease in a vaccine application," Professor Rood said.

"Our Centre's approach has made significant inroads in the development of a novel vaccine for footrot. The trialling process involves treating sheep with purified surface expressed proteins to assess whether they produce an immune response. The AWI funding means the development of a marketable vaccine is likely to happen a lot sooner. Ideally, this could be within a decade."

Australian Wool Innovation's Program Manager of Animal Health, Productivity and Welfare, Dr Johann Schröder said footrot has long been the bane of Australian woolgrowers and prime lamb producers.

"While many improvements have been made over the years in its control, and we have a very good understanding of measures to limit its impact on production, this avenue of research holds great promise," Dr Schröder said.

Footrot is a highly contagious disease that attacks the feet of sheep causing severe lameness and loss of body condition. It is prevalent in many countries around the world and, in Australia, the financial impact of the disease on the wool and livestock industry is estimated at \$100 million a year.

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