



## Technology Licensing Opportunity: *M. bovis* vaccine

### ***Non-Confidential Summary***

#### ***Background***

*Mycoplasma bovis* is an important pathogen of cattle and bison species. The disease in cattle includes chronic bronchopneumonia and polyarthritis the latter resulting in lameness. We have demonstrated that *M. bovis* is a secondary infection in feedlot cattle and is only observed after an infection with BHV-1. A similar disease is observed in bison, however it is seen in older (>2 yr) animals and it appears that is the result of a primary infection with *M. bovis*.

#### ***Development Stage:***

An *M. bovis* challenge model that reproduces the respiratory disease seen in Canadian feedlots has been developed. This model is being used to test vaccine efficacy.

We have determined that a combination of purified *M. bovis* membranes together with cytoplasmic proteins reduces lung pathology from *M. bovis* infection, but was not able to fully protect against infection. We are testing new formulations to improve this experimental vaccine. We have also identified *M. bovis* proteins that modulate cattle immune responses and will be testing these for protection.

We have identified bison *M. bovis* isolates that have different virulence properties than cattle isolates and are determining the cross protective nature of our vaccine against these isolates.

Lastly, we are working with the research institutes in Kenya to develop a vaccine for *Mycoplasma mycoides*.

#### ***Intellectual Property***

No patents have issued.

#### ***Publications***

Mulongo M, Prysliak T, Scruten E, Napper S, Perez-Casal J. In vitro infection of bovine monocytes with *Mycoplasma bovis* delays apoptosis and suppresses production of gamma interferon and tumor necrosis factor alpha but not interleukin-10. *Infect Immun*. 2014 Jan;82(1):62-71.

Mulongo M, Prysliak T, Perez-Casal J. Vaccination of feedlot cattle with extracts and membrane fractions from two *Mycoplasma bovis* isolates results in strong humoral immune responses but does not protect against an experimental challenge. *Vaccine*. 2013 Feb 27;31(10):1406-12

Prysliak, T., van den Merwe, J., Lawman, Z., Wilson, D., Townsend, H., van Drunen Littel-van den Hurk, S., and J. Perez-Casal. Respiratory disease caused by *Mycoplasma bovis* is enhanced by exposure to Bovine Herpes Virus 1 (BHV-1) and not to Bovine Viral Diarrhoea Virus (BVDV) type 2. *Can. Vet. J.* 2011. 52:1195-1202.

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