Re-investigating method of pink eye vaccination.

Project Code: POC.02.20

Completed: *In Progress. Results expected in February 2022.*

Project Title:

Safety and Immunogenicity of an Ocular Vaccine Delivery Vehicle

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Background

In most cases pink-eye occurs sporadically in herds, but outbreaks with a high case incidence do happen. These outbreaks have large animal health, labor, and cost implications. Currently available pink-eye vaccines aren't effective for disease prevention. This team has previously examined the commercial pink eye vaccine available in Canada and found that this subcutaneously injected vaccine fails to induce an immune response in the eye against the targeted pathogens.

Click to watch video >> "Pink eye vaccination research conducted at VIDO"

Objectives

- Determine if a novel vaccine delivery vehicle can be used to safely deliver vaccine antigens to the eye of young calves and induce increased antibody secretion in tears.

What they will do

This group wants to go back to the drawing board and see if changing the vaccine delivery method can improve the capacity of a vaccine to induce protective antibody responses in the eye. In this study they will address two specific questions. First, is the novel vaccine delivery vehicle safe to use or does it cause inflammation in the eye. Second, does delivery of the vaccine directly to the eye induce a local vaccine- specific immune response. Two different doses of the vaccine delivery vehicle will be delivered to the eyes of four, one-month old calves. Eyes will be monitored for inflammation or other signs of injury and tears will be collected to measure specific antibody responses. A second dose of the vaccine will then be delivered 4 weeks later and immune responses monitored for another two weeks.

Implications

This project will determine if delivering vaccines directly to the eye is a safe and effective alternative to current pink-eye vaccines that are injected subcutaneously. This will not result in a new vaccine on the market but if it works will get us one step closer to

developing and testing a vaccine that is effective against pink eye.

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