Poster Session I

Coordinator - Phillip Jardon, DVM

The development and testing of a vaccine for the prevention of infectious bovine keratoconjunctivitis

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Summary

We have purified, concentrated and stabilized the protein cytotoxin from Moraxella bovis. The toxin is concentrated on a filter with a 500,000 kDa molecular weight cut off. Small proteins are removed by extensive diafiltration on the same filter. The cytotoxin is concentrated approximately 500 fold, and remains active after 5 months of freezing. A vaccine trial for toxicity and efficacy were performed. Three groups of 5 calves each were given the cytotoxin preparation adjuvanted with Quil A formulated in immunostimulating complexes (ISCOM's), or oil, or aluminum hydroxide. Calves vaccinated with the oil adjuvanted vaccines had higher neutralizing and ELISA titers than the ISCOM group calves, and both of these groups had higher titers than the calves in the aluminum hydroxide group. Lacrimal secretions from the ISCOM vaccinated calves had a 6 fold post vaccination increase in neutralizing titers compared to a 2 fold increase in the oil and aluminum hydroxide vaccinated group.

A subsequent field study using 82 cross bred Hereford calves compared the protective effects of the oil adjuvanted and the ISCOM adjuvanted vaccines. The calves were randomly assigned to groups that were designated to receive either an oil adjuvanted vaccine(n=33), an ISCOM adjuvanted vaccine (n=29), a sham oil adjuvant group (n=10), or a sham ISCOM adjuvant (n=10) group. The sham group calves were given vaccine with adjuvant only (no cytotoxin). None of the calves in the ISCOM vaccine group developed corneal ulcers <0.6 cm in diameter. This compared to 24% of oil vaccinates which developed corneal ulcers >0.6 cm in diameter. The results of this study indicate that the ISCOM based vaccine may be an effective preventive for infectious bovine keratoconjunctivitis.

Evaluation of Type II Killed BVD Vaccine in the Face of Type II BVD Challenge

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Type II BVD continues to be a concern for cattle producers. Type I MLV BVD vaccines reportedly provide adequate protection against disease caused by Type II BVD. However, MLV vaccines cannot be used in all management situations. This study was designed to test the efficacy of an experimental killed Type II BVD vaccine. In addition, the study compared results with efficacy of modified live and killed Type I BVD vaccines, as well as with efficacy of a killed Type II/MLV Type I combination.

Cattle (n=30) that were seronegative against BVD (SN<1:2) were divided into five test groups of six animals each. On days 0 and 14, cattle were bled and vaccinated with one of the following preparations: **1)**