



MSc. Defence

The Effect of Interleukin-10 Receptor Alpha on Bovine Mammary Epithelial Cells Infected with Mycobacterium avium subsp. paratuberculosis.

Aisha Fong

Date: December 22nd 2021 at 9:00am

The MSc Defence for Aisha Fong has been scheduled for December 22nd, 2021 at 9:00am. The defence will be held online via Teams: https://teams.microsoft.com/l/meetup-join/19%3ameeting_YjVhMThkZTUtMWJmMy00NjQ3LWE4MjItYzg4YmQ3MzhkZTk%40thread.v2/0?context=%7b%22Tid%22%3a%22be62a12b-2cad-49a1-a5fa-85f4f3156a7d%22%2c%22Oid%22%3a%22fbd28915-dda5-478f-8ecb-a3682dcf0c3a%22%7d

The exam committee will consist of:

Examining Chair: Dr. Alexandra Harlander

Advisor: Dr. Christine Baes

Adv. Committee Member: Dr. Niel Karrow

Additional Graduate Member: Dr. Dan Tulpan

Abstract:

Johne's disease is a chronic wasting disease in dairy cattle caused by the bacterium *Mycobacterium avium* subspecies paratuberculosis (MAP). Genetic selection can help to control this disease, and one candidate gene of interest is the gene encoding for interleukin-10 receptor subunit alpha (IL10R α). A bovine mammary epithelial cell line was created with the gene encoding IL10R α knocked out (IL10KO). This cell line was exposed to live MAP, and mRNA was extracted. The differentially expressed genes were compared between the IL10KO and wild-type cell lines, and gene ontology was performed. There was a difference in immune response between the IL10KO and wild-type cells, and little difference between the uninfected IL10KO cells and the infected IL10KO cells. Haplotypes 0.5Mb upstream and downstream of IL10R α associated with a positive test for Johne's disease were not found within a population of 618 cows, however there was genetic variation, meaning there is potential for selection.