



MSc. Defence
**The Transcriptomic Effects of MicroRNA-29b-3p in Porcine Granulosa
Cells**

Renée E. Hilker

Date: December 8th 2021 at 9:30am

The MSc Defence for Renee Hilker has been scheduled for December 8th, 2021 at 9:30am. The defence will be held online via Teams: https://teams.microsoft.com/l/meetup-join/19%3ameeting_Y2UyYmVkNjAtMDlhNi00ZDU2LTkyY2YtMjQ0MmY4MmQ4ZW14%40thread.v2/0?context=%7b%22Tid%22%3a%22be62a12b-2cad-49a1-a5fa-85f4f3156a7d%22%2c%22Oid%22%3a%22bd28915-dda5-478f-8ecb-a3682dcf0c3a%22%7d

The exam committee will consist of:

Examining Chair: Dr. David Huyben

Advisor: Dr. Julang Li

Adv. Committee Member: Jonathan LaMarre

Additional Graduate Member: Dr. Angela Canovas

Abstract:

MicroRNAs interfere with translation of mRNAs through complementary binding at the 3' untranslated region (UTR). MicroRNA-29b-3p (miR-29b) is localized to the nucleus in porcine granulosa cells, but its function is unknown. We hypothesized miR-29b binds to nuclear DNA to regulate transcription. We analyzed genes regulated by miR-29b for potential binding sites in their promoter regions. MiR-29b may bind to the promoter regions of *GLUL*, *CDKN2B*, and *NR2F2*, but does not regulate *NR2F2* transcription. We instead identified genes miR-29b may regulate via 3' UTR repression. Through transcriptomic analysis, we found miR-29b reduces the expression of pro-proliferative genes. MiR-29b also enhances pro-autophagic gene expression while inhibiting granulosa cell apoptosis. Thus, miR-29b may regulate granulosa cell proliferation and apoptosis through the regulation of novel 3' UTR interactions identified in this study. However, its specific nuclear function still requires further investigation.