

Title: Modelling host: parasitic nematode interactions with ovine 'mini-gut' organoids.

Teladorsagia circumcincta and *Trichostrongylus colubriformis* are two of the most predominant gastrointestinal (GI) nematodes of sheep in temperate regions. Their reported resistance to anthelmintics is increasing so research into new control strategies such as vaccination is vital. Extracellular vesicles (EVs) are an area of interest for identification of potential vaccine and are released by these parasitic nematodes. However, there are challenges in studying interactions between the host and GI nematodes due to the lack of accessibility of the infection site and the need to rely on infection models which have ethical implications. Recently, ovine GI organoids have been developed which will allow host-parasitic interactions to be studied in a physiologically relevant and host specific *in vitro* cell culture system. The overall aim of the project is to use ovine GI organoids to identify and characterise active components of *T. circumcincta* and *T. colubriformis* EVs that are released during their parasitic life stages. So far, this project has separated EVs from excretory/secretory products of adult *T. circumcincta* and confirmed their presence. The samples then underwent protein characterisation using mass spectrometry. Finally, the EVs will be co-cultured with organoids to confirm the uptake of EVs and identify any potential phenotypic changes.