

Title:

**Effect of parasitic *Cryptosporidium* on the gut-microbiome of bovine livestock: A computational metagenomic approach**

Authors:

Mumdooh Sabir, Ross Low, Pedro Pinto, Tasos Tsaousis, Georgina Hurle, Kevin Tyler, Neil Hall

This study investigated the impact of *Cryptosporidium* infection on the gut microbiome of cattle. Cryptosporidiosis is a parasitic disease that can lead to significant economic losses amounting to billions of dollars worldwide. Using a bioinformatic pipeline based on shotgun metagenomic sequencing, we found that infection with *Cryptosporidium spp.* is associated with dysbiosis, a pronounced reduction in bacterial diversity in the gut microbiome of infected hosts. We also observe a positive correlation between the relative abundance of *Cryptosporidium* and potential pathogens of the genus *fusobacterium* in the microbiota. The study highlights the importance of understanding the relationship between *Cryptosporidium* infection and gut microbiome alterations and how the gut microbiome differs between infected and uninfected hosts.