Department of Veterinary Medicine

Available PhD Project:

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Project Title: Identification of biomarkers for cyathostomin infection in horses

Description: Cyathostomins are amongst the most important gastrointestinal parasitic nematodes of equids globally, causing a range of pathologies from non-specific weight loss and spasmodic colic, to severe enteropathy caused by the destruction of the large intestinal epithelium by parasite larval stages. Control strategies against these parasites are hindered by the emergence of resistance against common parasiticides; in order to overcome this issue, currently recommended treatment protocols involve administering anthelmintics to animals with high burdens of infection, whilst leaving those with low parasite burdens untreated, thus potentially reducing selection pressure for anthelmintic resistance. However, such a strategy heavily relies on the availability of robust and reliable quantitative diagnostic tools to estimate infection burden in live horses. Traditional methods, such as faecal egg counts, are considered unreliable. Studies in other host-parasite systems have suggested that a number of faecal and urinal metabolites may serve as indicators of infection burdens. Therefore, this project aims to build on this knowledge by identifying faecal and urinal diagnostic biomarkers of cyathostomin infection and establishing a correlation between levels of such biomarkers and infection burden in horses. The project will benefit from samples collected as part of a project investigating the interactions between cyathostomins and the horse gut microbiota at the University of Cambridge.

The student will gain excellent skills in diagnostic parasitology, metabolomics and multivariate analysis, and will be part of a strong research team focusing on host-parasite interactions in helminth infections.

References
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Funding:
This project is not funded. Prospective students would be expected to apply for funding opportunities either through the University (http://www.vet.cam.ac.uk/grad/Prospectivestudents/funding) or other sources.

How to apply:
Contact the Supervisor to discuss before submitting an application.
More details on how to apply here: http://www.vet.cam.ac.uk/grad/Prospectivestudents/apply