

JOB ENVIRONMENT

■ Research unit :

UMR1213 Herbivores is a joint research unit associating INRAE and VetAgro Sup. It contributes to the design of sustainable farming systems for herbivores that seek to reconcile production efficiency, product quality and socio-economic viability with environmental protection and valuation, and animal welfare. UMR1213 Herbivores assesses both on-farm practices and predominant and alternative systems of herbivore farming and proposes innovative techniques with high environmental value. To achieve this aim, UMR1213 Herbivores analyses and integrates the underlying biological mechanisms, and establishes laws for animal responses with approaches ranging from high-throughput techniques to modelling and decision support tools for various stakeholders (producers, consumers, citizens, and policy-makers).

■ Context :

This Scholarship is part of a large international project called 'HoloRuminant', funded by the EU Horizon 2020 Framework Programme for Research and Innovation (2014-2020). The goal of the project is to elucidate the role of ruminant-associated microbiomes and their interplay with the host in early life and throughout fundamental life events.

Ruminants gut microbiota and their role in feed degradation have a crucial contribution to developing gut physiology and the immune system. Initial colonisation starts at birth and is a two-way interaction between host and microbes. Pioneer studies have explored the dynamics of colonisation in newborn lambs, the effects of maternal compared to artificial rearing before and after weaning and highlighted the importance of vertical and horizontal transfer of microbes. Partly because of their immature digestive microbiota, young ruminants are vulnerable to disease for a significant period at a crucial point of their development. Pathogenic viruses, protozoa or bacteria could take advantage of the young gut microbiota and cause diarrhoea. In France, all production systems combined, the average mortality rate of lambs is 16% and could increase to up to 80% in colostrum-deprived newborns, one third is due to diarrhoea (Idele 2012). High lamb mortality is an economic loss for farmers as well as welfare and ethical issue. In this context, there is a need for a better understanding of early colonisation determinants and consequences. However, so far, studies exploring the link between early-life colonisation, health and performance are still primarily correlative. Scientific establishment of causality is challenging, relying on three criteria: association of events, time ordering and non-spuriousness.

The planned experiment will involve twin, and triplet lambs reared with their mother or artificially. Ewes and lambs will be frequently sampled for rumen contents. DNA/RNA will be extracted from the rumen contents using standardised procedures and will be sent for amplicon or shotgun sequencing. Additionally, data on fermentation parameters, microbial metabolism, and animal performances will be collected and analysed. This project will

la science pour la vie, l'humain, la terre

Centre Clermont Auvergne Rhône-Alpes

Site de Theix

63 122 Saint-Genès-Champanelle

Tél. : +33 (0)4 73 62 40 00

Rejoignez-nous sur :



Site internet du centre

produce enough data to characterise the sequentiality of colonisation and identify microorganisms contributing to a healthy gut ecosystem.

We are searching for a highly motivated candidate to conduct the animal experiment, collect and analyse samples, perform data integration. The candidate should hold an M.Sc. degree in an appropriate discipline (Microbiology, Veterinary Science, Animal or Agricultural Science, Molecular biology etc.). The successful candidate should be highly self-motivated and be prepared for both laboratory and field work. Previous in anaerobic microbial ecology will be highly appreciated. Knowledge of the statistics software package R well as verbal and written communication skills in English, is a prerequisite.

■ **Website of the unit :**

<http://www1.clermont.inra.fr/urh/>

REQUIRED QUALIFICATIONS

We are looking for a highly motivated individual with:

- M.Sc. degree in an appropriate discipline (Microbiology, Veterinary Science, Animal or Agricultural Science, Molecular biology etc.)
- Lab and fieldwork
- Interest in Microbiology
- Advanced use of R software

<h3>↳ Reception conditions</h3> <ul style="list-style-type: none">■ Research unit : UMRH■ Location : INRAE – UMRH – Theix – 63122 St Genes Champanelle (France)■ Type of contract : PhD■ Duration : 3 years■ Starting date : asap■ Gross Salary : 1874,41€✗ Deadline for application: 01/08/2022	<h3>↳ How to apply</h3> <p>Send a motivation letter and a CV to :</p> <p>Milka Popova milka.popova@inrae.fr Diego Morgavi diego.morgavi@inrae.fr</p> <ul style="list-style-type: none">■ <u>Phone number</u> <p>0473624727</p>
---	---



la science pour la vie, l'humain, la terre

Centre Clermont Auvergne Rhône-Alpes

Site de Theix

63 122 Saint-Genès-Champanelle

Tél. : +33 (0)4 73 62 40 00

Rejoignez-nous sur :



Site internet du centre