RuminOmics E-Newsletter

Connecting the animal genome, gastrointestinal microbiomes and nutrition to improve digestion efficiency and the environmental impacts of ruminant livestock production

March 2013

In This Issue

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Welcome

Welcome to the first issue of the letter. These will be produced at regular intervals over the next three years keeping you up-to-date with the progress of Ruminomics. In this first edition we outline the aims and expected outputs of the project and future newsletters will keep you in touch with new developments. More information on these will be available through links to our website (www.ruminomics.eu) which will have details of results and their implications, symposia presentations and publications arising from the project.

The Project

Ruminant livestock make a significant contribution to greenhouse gas (GHG) emissions. Enteric emissions in the form of methane together with losses from manures and those associated with land use changes comprise the majority of livestock related GHG.

Technologies that increase rumen efficiency and lower methane emissions form a vital mitigation strategy to reduce global warming impacts.

Prof John Wallace of the University of Aberdeen leads the consortium and the list of partners can be found at http://www.ruminomics.eu/ - !partners

Ruminomics will integrate expertise and technologies to increase rumen efficiency and decrease the environmental footprint of ruminant production, significantly advancing current knowledge in this sector.

Ruminomics will exploit state-of-the-art –omics technologies to understand how ruminant gastrointestinal microbial ecosystems are controlled by the host animal and by the diet consumed, and how this impacts on GHG emissions, efficiency and product quality.

This will be achieved through 9 closely integrated packages of work. You can learn more about these at http://www.ruminomics.eu/ - !research-programme.

RuminOmics is supported by EU FP7 under grant agreement 289319

Outputs

Ruminomics will

- Relate animal genome to microbiome, feed efficiency, and methane emissions
- Determine host-microbe interactions in genetically identical and genetically diverse animals
- Relate changes in the nutrient supply to the ruminant with the composition and function of the ruminal microbiome, as assessed by methane and N emissions.
- Provide tools and bioinformatics for rapid analysis of phenotypes, microbiomes
- Create a public metagenomics database
- Effectively disseminate project technologies and results.

Flash News- joint Ruminomics/Rumen Microbial Genomics Network Workshop. Register Now

22 June 2013 GGAA Dublin

High-level objective: *Harmonization of techniques associated with ruminal microbiome and metagenome analysis*

For more information go to http://www.ggaa2013.ie/workshops.html.

The project will support the attendance of young scientists from Eastern Europe and the Mediterranean. Please keep checking the project website for information or email info@ruminomics.eu

Reindeer for a better understanding of cows

The microbial population in the rumen influences feed efficiency, methane output, nutrient supply and product quality in ruminants. By understanding how much the host ruminant influences and controls the microbial population in the rumen, it may be possible to develop breeding programmes in the future for the selection of more efficient animals. In the Ruminomics project, the composition and functioning of the rumen were compared between cows and reindeer. Non-lactating cows and reindeer were fed the same diet and digesta exchanged to understand the role of ruminant species on the rumen microbiome and rumen function including enteric methane production and nutrient digestion. Initial results suggest that contrary to anecdotal evidence, reindeer appear to produce more methane per unit live weight than cows.

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