

PhD opportunity in Animal Genetics

A PhD position is available at the department of Animal Science, McGill University to study the genetics of bovine milk cholesterol (Identification of molecular determinants and biomarkers of milk cholesterol)

Project description

The dairy industry ranks third in the Canadian agricultural sector generating about \$5.5 billion in net farm receipts and sales of \$13.7 billion in year 2010 alone. Recently, health conscious people have driven changes in the demand for milk and milk components resulting in the restructuring of major global milk markets. Milk/dairy products supply high quality nutrients in the diets of Canadians, including bioactive lipids (some unsaturated fatty acids) and peptides with well documented health benefits. Cholesterol (CH) is the major sterol in milk fat and milk fat is the second contributor to daily dietary CH intake after eggs. Numerous human studies have linked increased blood concentrations of CH in low density lipoprotein to increase risk of cardiovascular diseases (CVD) and increased blood concentrations of CH in high density lipoprotein to improved human health. Human mortality in the West is still caused to a large extent by CVD. Milk CH content is highly variable between breeds and species and is influenced by several factors including genetics. The research strategy would be to determine quantitative trait loci (QTL) and SNPs associated with milk CH content through a genome wide association study using Illumina 50K SNP chip; identify causal mutations or quantitative trait nucleotide (s) (QTN) explaining heritable variance of most significant QTL peaks through a fine mapping approach; validate identified QTN in further herds and by functional studies for use in breeding programs for milk CH content; and determine the relationship between milk CH and milk fatty acids.

Qualifications

- Master's degree in animal science, biochemistry, genetics, biology, molecular biology, biotechnology, microbiology or related topics

Other information

- This position will be available for 3 years starting in September 2014
- Experience working with DNA manipulation and purification
- Knowledge of molecular biology techniques
- Knowledge of statistical analysis of data
- Knowledge of bioinformatics tools will be an asset.
- Willingness to work in contact with dairy cows
- Good writing skills in English

Interested candidates should send their CV (should include publications if any), transcripts and a letter of motivation by email not later than June 15 to Dr. Xin Zhao (xin.zhao@mcgill.ca) and Dr. Eveline Ibeagha-Awemu (eveline.ibeagha-awemu@agr.gc.ca)