

Department of Molecular and Cellular Biology
Graduate Seminar MCB*6500



Friday, March 31, 2017 in SSC 1511 @ 12 noon

presented by:

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**Identification of genetic markers in Luman and LRF
for the selection of lower stress breeding pigs**

The pork industry generates over three billion dollars in annual revenue in Canada, and accounts for roughly 1 in 7 jobs in Ontario. It is well documented that stress negatively impacts swine immunity and health, a continuing problem for pork producers that has massive economic implications. Behavioral and neuroendocrine responses to stress are highly variable and can be attributed significantly to differences in genetic background and prior experiences. Currently, the underlying genetic component is unclear. Two stress regulatory genes, namely Luman and Luman recruitment factor (LRF), are of particular interest to us, having been shown to function as important regulators of the HPA axis and stress hormone signaling in mouse models. Recently, we have found that Luman- and LRF-deficient mice are lean and less susceptible to environmental stress, demonstrating greater stress resilience in response to novel stimuli. Based on these findings, investigation of these two stress-response genes represents a promising avenue for exploring potential applications in farm animals, such as pigs. We propose that there are naturally occurring variations in the Luman and LRF genes in pigs that can be used as markers for stress-responsiveness. The identification of such markers could allow for the genetic selection of low-stress pigs in breeding programs. This will have important implications in the pork industry as improving the adaptability of animals to their environment would improve animal well-being and general health, thereby reducing antibiotic use and management costs, while improving the quality of pork products and animal welfare.