

# A pilot study to establish a gene panel for the identification of low-stress pigs

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*Project Status: Completed in 2018*

In this study, seven possible genetic markers related to stress resistance were identified in Yorkshire piglets. This work shows promise in eventually being able to use genetic markers to select for low-stress pigs.

## Why was this study done?

Pigs experience stress as a part of their routine life, which includes social stress such as feeding competition and aggression as well as environmental stressors like extreme temperatures, reduced space and new environments. Stress not only impacts the animal's immune system and general health, it also affects animal growth performance and meat quality, increases injuries and the cost of production.

Researchers have recently identified genetic variations that could allow mice to be more resistant to stress. As mice and pigs have very similar hormonal regulation, the researchers' goal was to apply the knowledge learned in mice to pigs.

## What was done and what was the outcome?

Researchers identified six genetic markers in Yorkshire pigs and discovered a new one (a single-nucleotide polymorphism (SNP)) that may be related to stress resistance. This SNP predominantly exists in that breed.

They also studied how 85 Yorkshire piglets responded to stress. To do so, they performed behavioral tests and measured levels of the stress hormone cortisol. They also determined the piglets' genotype, especially for the seven genetic markers potentially related to pig stress response.

Results showed that the studied Yorkshire piglets had different genotypes for the seven genetic markers of interest and had differing behavioral and hormonal responses to stressful situations. This means that it could eventually be possible to use genetic markers to select for low-stress pigs. However, more work needs to be done before low-stress pigs can be genetically selected, such as examining pigs from other breeds and genetic backgrounds.

## Collaborators

<b>Renée Bergeron</b>	University of Guelph
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# Additional project information

Click on the links below for further  
information on this project  
*Links were last updated in 2022*

## R&D Featured Articles—by Geoff Geddes for Swine Innovation Porc

Articles may be found at: <http://www.swineinnovationporc.ca/resources-e-newsletters.php>

- [Worried About Pig Stress? Research Offers Reassurance](#)  
- March 2019 (Vol. 3, No. 25.)

## Additional reading:

- Larson, S. et al. (2017) [Identification of genetic markers in Luman and LRF for stress-responsiveness in piglets](#). Abstract. *Proceedings of the University of Guelph Swine Research Day 2017: Wed, May 17, 2017, p. 11.*  
Retrieved from: <https://www.uoguelph.ca/osrn/swine-research-day/proceedings-archives>

## Financial support for this project

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