Bioinformatics post-doctoral researcher to identify biomarkers of heat tolerance in pigs

A postdoctoral researcher position is available in the Physiology, Environment, and Genetics for the Animal and Livestock Systems (PEGASE) research unit of the French National Institute for Agricultural Research (INRA) for a dynamic and highly motivated candidate interested to work on the mechanisms underlying adaptation to thermal heat stress and the identification of biological markers of heat tolerance in pig. The candidate will be involved in a large collaborative project dedicated to understanding the genetics of heat stress tolerance. The performances of 1,120 siblings issued from a heat sensitive (Large White) and heat tolerant (Créole) pig backcross have been recorded in a humid tropical environment and in a temperate environment in two INRA experimental farms (in Charentes and in West-Indies). In the temperate environment, pigs were submitted to an experimental challenge miming a summer heat wave. All animals were genotyped on the 60K SNP chip, and individually phenotyped for performance and thermotolerance traits. Blood NMR 1H metabolomic profiles (n = 2,240) are available for all animals for the three conditions (tropical vs. temperate climate, before and after the thermal challenge).

This project has four aims: (1) generate a large data set with genotyping data, omics profiling and phenotypes for heat tolerance trait; (2) detect QTL for heat tolerance and QTL robust to heat stress ; (3) develop and deliver integrative approaches to dissect the mechanism underlying heat adaptation and propose new biomarker; and (4) propose new selection schemes.

The position is available for a period of one year (starting date: 1 June 2016). The candidate will be in charge of the analysis of data generated in the project with a focus on the identification of reliable biomarkers that measure levels of heat tolerance in pigs. In particular, he/she will have to integrate information from different matching datasets (i.e., growth performance, thermoregulatory responses, metabolomic profiles measured on the same individuals) with the aim 1/ to determine if blood biomarkers could be consistently associated with heat tolerance or performance traits in pigs and 2/ to improve, the fine mapping of the QTL regions previously detected for quantitative traits, using the metabolic profiles to dissect the genetic architecture of the traits.

The applicant should have a Ph.D. degree in animal genomic, biochemistry, biology, molecular biology, biotechnology, computational biology, bioinformatics, or related discipline. Ideally, the candidate will have experience in the development of analytical approaches to high-throughput and multivariate data mining.

Applicants should be able to work in a collaborative manner with the other researchers (physiologists, geneticists, mathematicians) implied in the project.

To apply to this position, candidates should submit a brief description of your research experience, motivation letter, CV, and the names and contact information of two references

The salary for this post-doctoral position is 43,000 €/year.

For more information, please contact: David Renaudeau (david.renaudeau@rennes.inra.fr) / Juliette Riquet (juliette.riquet@toulouse.inra.fr)