



HAL
open science

Genetic variability of vaccine responses in pigs: application to vaccines against *Mycoplasma* *hyopneumoniae* and Influenza A virus

Fany Blanc, Tatiana Maroilley, Gaetan Lemonnier, Jean Jacques Leplat,
Edwige Bouguyon, Yvon Billon, Olivier Bouchez, Jean Pierre Bidanel,
Bertrand Bed'Hom, Jordi Estellé, et al.

► To cite this version:

Fany Blanc, Tatiana Maroilley, Gaetan Lemonnier, Jean Jacques Leplat, Edwige Bouguyon, et al.. Genetic variability of vaccine responses in pigs: application to vaccines against *Mycoplasma hyopneumoniae* and Influenza A virus. 6. European Veterinary and Immunology Workshop (EVIW), British Society for Immunology. Londres, GBR., Sep 2018, Utrecht, Netherlands. hal-02734174

HAL Id: hal-02734174

<https://hal.inrae.fr/hal-02734174v1>

Submitted on 2 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



[Print this Page for Your Records](#)

[Close Window](#)

Control/Tracking Number: 2018-A-103-EVIW

Activity: Abstract

Current Date/Time: 4/20/2018 12:16:16 PM

Genetic variability of vaccine responses in pigs: application to vaccines against *Mycoplasma hyopneumonia* and Influenza A virus

Author Block: F. Blanc¹, T. Maroilley¹, G. Lemonnier¹, J. Leplat¹, E. Bouguyon², Y. Billon³, O. Bouchez⁴, J. Bidanel¹, B. Bed'Hom¹, J. Estellé¹,
C. Rogel-Gaillard¹;

¹GABI, INRA, AgroParisTech, Université Paris-Saclay, Jouy en Josas, France, ²VIM, INRA, Université Paris-Saclay, Jouy en Josas, France,

³GenESI, INRA, Surgères, France, ⁴GeT-PlaGe, INRA, Castanet-Tolosan, France.

5. Abstract:

Deciphering the influence of host genetics in shaping innate and adaptive immunity could contribute to improve vaccination strategies.

In the H2020-funded SAPHIR project, we aim at analyzing the individual variability of responses to vaccines against *Mycoplasma hyopneumoniae* (*M. hyo*) or Influenza A Virus (IAV) in pigs, and at identifying candidate genetic markers and blood biomarkers that predict response levels. Forty-eight families of Large White pigs were produced in five batches and housed in a conventional facility.

All pigs were vaccinated at weaning (around 28 days of age) with a booster vaccination three weeks later. 182 and 98 piglets were vaccinated against *M. hyo* or IAV, respectively, and 64 non-vaccinated piglets were included as shared controls for the two vaccine experiments. The humoral vaccine response was measured by following levels of seric *M. hyo*- or IAV-specific IgGs, before vaccination on the vaccine day, every week during five weeks post-vaccination, and before slaughtering. In addition, haemagglutination inhibition

(HAI) assays were performed for IAV-vaccinated pigs. Our results showed a wide range of responses. Females exhibited a higher humoral response to vaccination compared to males for the two vaccines. Blood sampled before vaccination was used for high-density SNP genotyping and RNAseq analysis. Genome wide association studies have revealed few candidate genomic regions associated with individual variabilities of vaccine responses to *M. hyo* or IAV. We have also identified significant associations between gene expression in blood before vaccination and vaccine responses, confirming that blood could be a source of predictive biomarkers.

:

Author Disclosure Information:

F. Blanc: None. **T. Maroilley:** None. **G. Lemonnier:** None. **J. Leplat:** None. **E. Bouguyon:** None. **Y. Billon:** None. **O. Bouchez:** None. **J. Bidanel:** None. **B. Bed'Hom:** None. **J. Estellé:** None. **C. Rogel-Gaillard:** None.

2. Topic (Complete): 04. Vaccination

3. Keyword (Complete): vaccine response ; pig

6. Presentation Preference (Complete): Oral preferred

Status: Complete

EVIW Conference c/o Vienna Medical Academy

Alser Strasse 4, A-1090 Vienna, Austria

Tel: (+43/1) 405 13 83-17

Fax (+43/1) 407 82 74

[Leave cOASIS Feedback](#)

Powered by [cOASIS](#), The Online Abstract Submission and Invitation System SM

© 1996 - 2018 [CTI Meeting Technology](#) All rights reserved.

