



**HAL**  
open science

## Development of a snp parentage assignment panel for French sheep breeds

Flavie Tortereau, Carole Moreno-Romieux Moreno, Gwenola Tosser-Klopp, L. Barbotte, Lucie Genestout, Jérôme Raoul

► **To cite this version:**

Flavie Tortereau, Carole Moreno-Romieux Moreno, Gwenola Tosser-Klopp, L. Barbotte, Lucie Genestout, et al.. Development of a snp parentage assignment panel for French sheep breeds. 23. Plant and Animal Genomes Conference, Jan 2015, San Diego, United States. 2015. hal-02742660

**HAL Id: hal-02742660**

**<https://hal.inrae.fr/hal-02742660>**

Submitted on 3 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.

# DEVELOPMENT OF A SNP PARENTAGE ASSIGNMENT PANEL FOR FRENCH SHEEP BREEDS.

TORTEREAU F.<sup>1</sup>, MORENO C.<sup>1</sup>, TOSSER-KLOPP G.<sup>1</sup>, BARBOTTE L.<sup>2</sup>, GENESTOUT L.<sup>2</sup>,  
RAOUL J.<sup>3</sup>

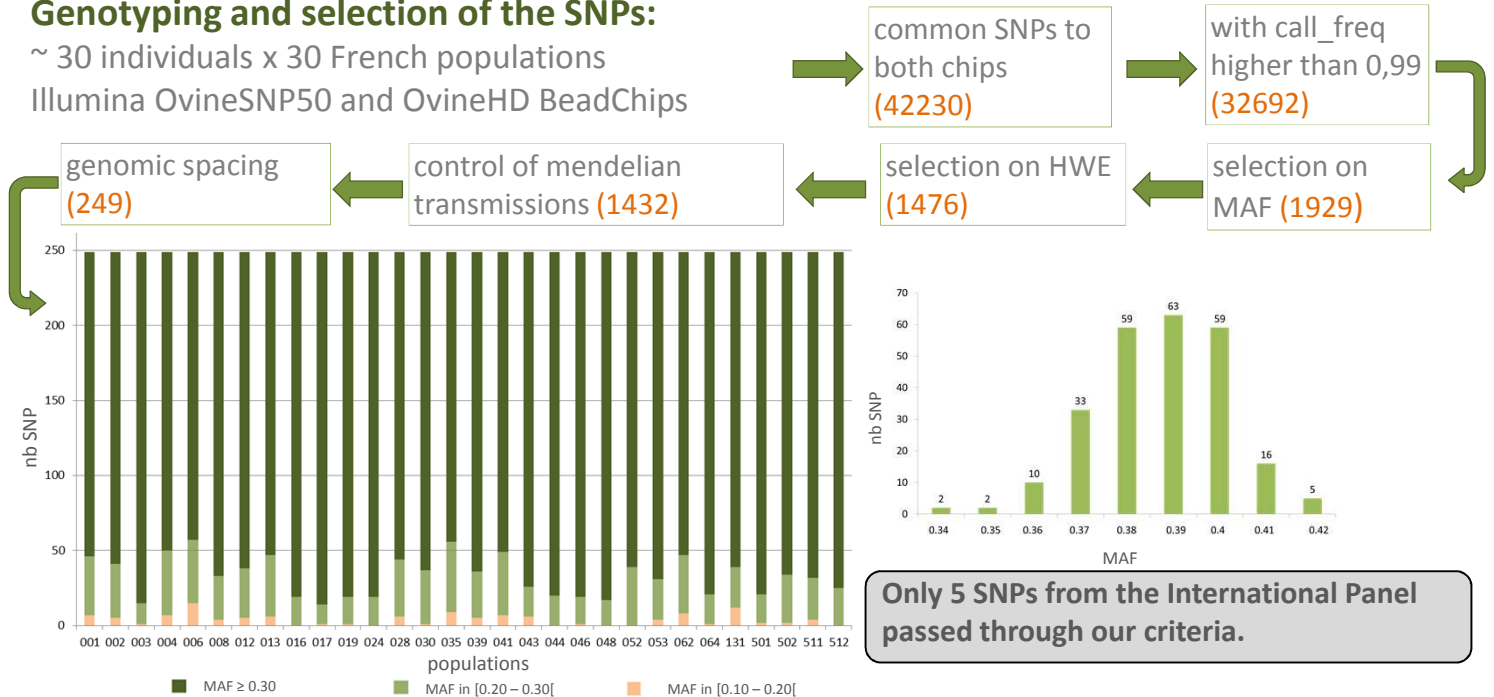
<sup>1</sup>INRA – CASTANET-TOLOSAN CEDEX (FRANCE) <sup>2</sup>LABOGENA-DNA – JOUY-EN-JOSAS (FRANCE)

<sup>3</sup>INSTITUT DE L'ELEVAGE – CASTANET-TOLOSAN CEDEX (FRANCE)

**Introduction:** Variable uses of animal insemination in France: ~100% in main dairy sheep breeds and from 10 to 95% in meat sheep breeds. It induces a loss of efficiency of the breeding programs.  
→ Design of a French SNP panel to assess parentage in sheep breeds.

## Genotyping and selection of the SNPs:

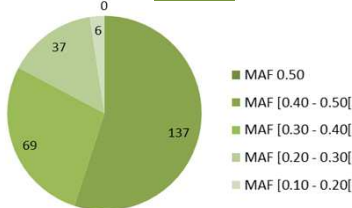
~ 30 individuals x 30 French populations  
Illumina OvineSNP50 and OvineHD BeadChips



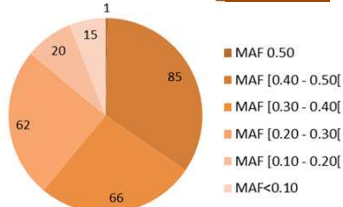
Only 5 SNPs from the International Panel passed through our criteria.

## The 249 retained SNPs in other European breeds:

Spanish breeds: Churra, Castellana, Ojalada



Scottish breeds: Texel, Blackface



More than **85%/98%** of the parentage SNPs selected with French breeds have **MAF ≥ 0.20** in **Scottish/Spanish** breeds.

## 192 of the retained SNPs to test parentage assignment with the Sequenom technology:

- 4 plexes (192 parentage SNP + 19 French causal mutations)
- Genotyping 809 lambs, 105 sires
- Assignment by maximum likelihood.

Total nb lambs	Assignment to one sire among the 105 candidates	
	Total of unique sire assignment	Assigned sire = declared sire
809*	95%	90%

Bad declaration or DNA sample mislabelling?

- Assignment is efficient for 90 to 95% of lambs.  
- If none of the 2 parents are genotyped, the assigned sire can be a relative of the true sire.

## Conclusion: The French parentage SNPs panel :

- could fit for assignment in European breeds (at least Scottish and Spanish breeds)
- allows the assignment of more than 90% of the lambs, the main limits being the exhaustiveness of the possible sires list.