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

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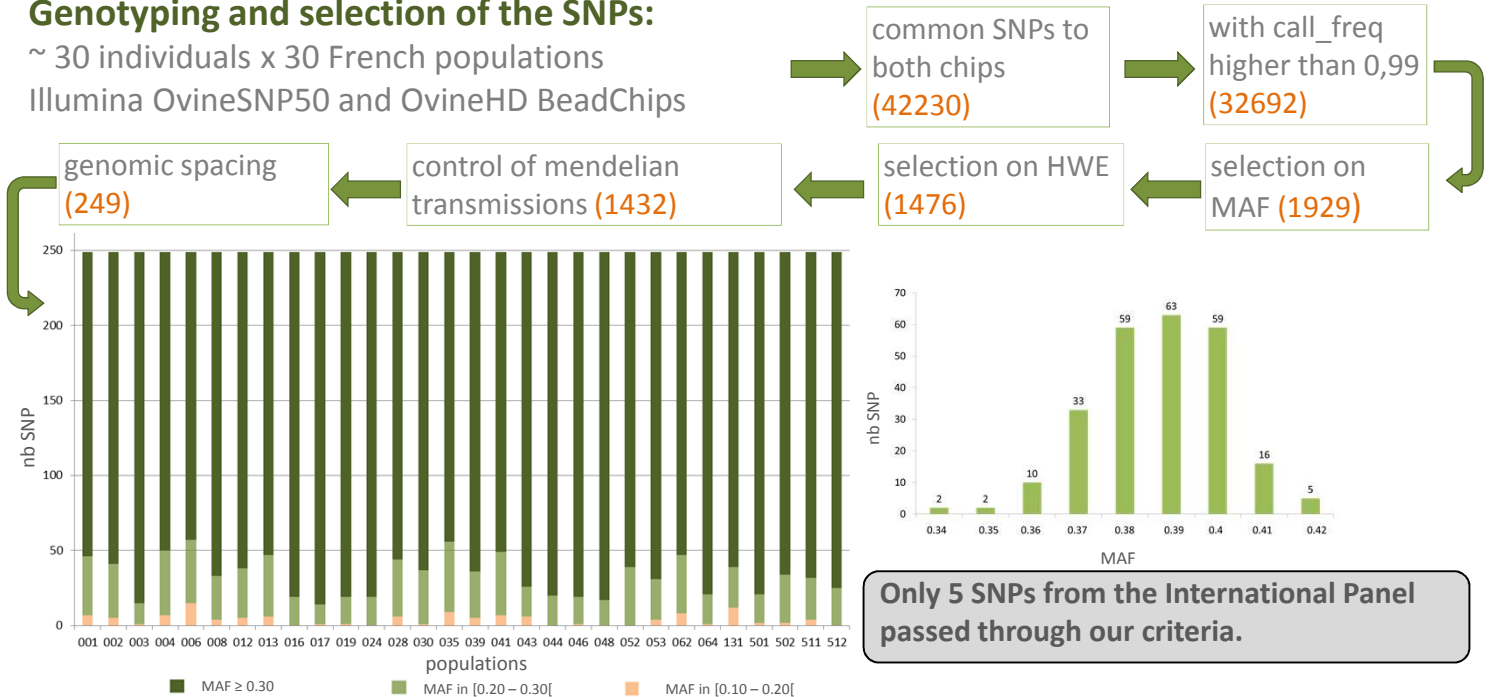
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Introduction: Variable uses of animal insemination in France: ~100% in main dairy sheep breeds and from 10 to 95% in meat sheep breeds. It induces a loss of efficiency of the breeding programs.
→ Design of a French SNP panel to assess parentage in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

Genotyping and selection of the SNPs:

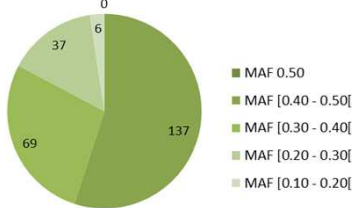
~ 30 individuals x 30 French populations
Illumina OvineSNP50 and OvineHD BeadChips



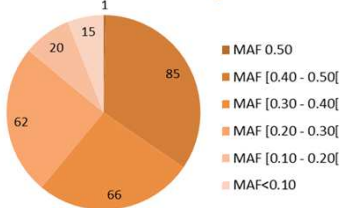
Only 5 SNPs from the International Panel passed through our criteria.

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.