

GENOMIC IMPRINTING IN ITALIAN DWARF CHICKEN BREEDS

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541 chickens representing 23 breeds:

- 3 “dwarf” breeds
- Choose reference populations



Genotyping:

- 600 K Chicken SNP Array

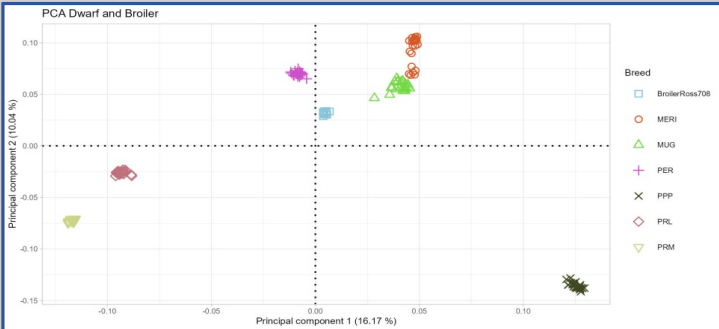


Bioinformatic analysis:

- Plink (QC)
- Gemma (GWAS)
- SnpEff (variant annotation and effect prediction)
- VCFtools (variant analysis)



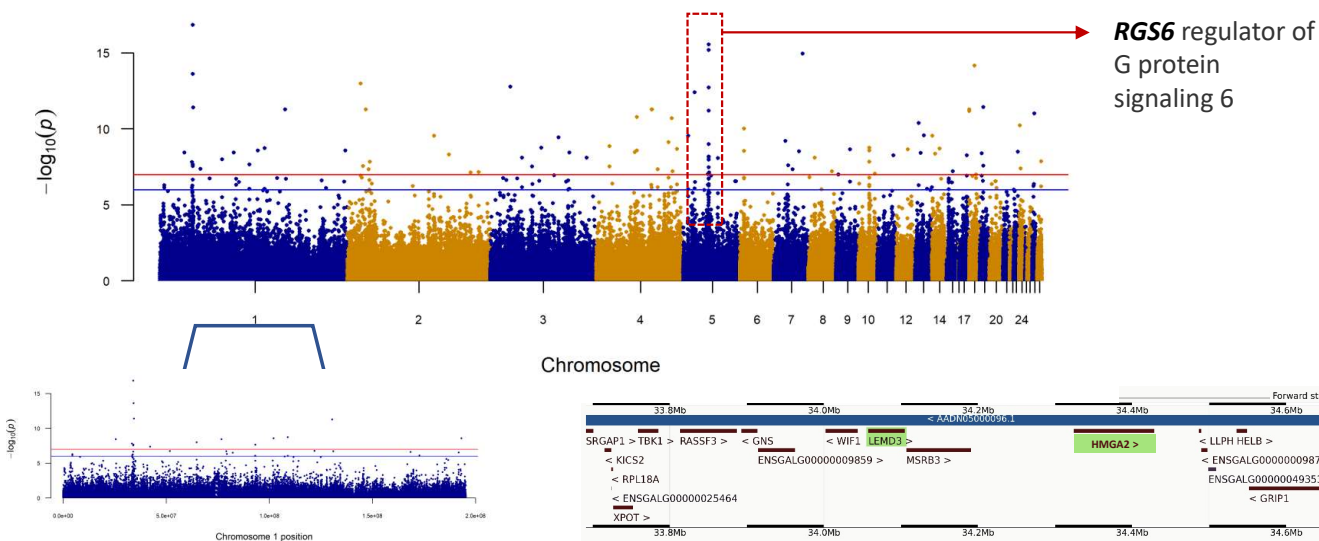
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Uncertain differentiation between dwarf and small breeds. Do Mericanel della Brianza, Pepoi and Mugellese have genomic features of dwarf breed?

MERICANEL + MUGELLESE vs BROILER



Discussion and Conclusions

GWAS identified two significant candidate genes for dwarfism on Chromosome 1:

HMG2:

It is responsible of dwarfism in:

- Bantam Netherland chicken (Wu et al., 2020)
- Rabbit (Carneiro et al., 2017)
- Dog (Plassais et al., 2019; Akey et al., 2010)

LEMD3:

It is associated with:

- *WIF1* in ear size of pig (Zhang et al., 2014)
- *HMG2* is responsible of dwarf rabbit (Carneiro et al., 2017)
- *HMG2* and *WIF1* implicated in human dwarfism (Mari et al., 2009)

We show that Mericanel della Brianza and Mugellese breeds can be considered dwarfs, unlike Pepoi chickens