Genomic Adaptation of Mediterranean and Alpine Local Cattle Breeds to the Climate Variables

GALIMED and BOVITA PROJECTS

Prof. Roberta Ciampolini
Dipartimento di Scienze Veterinarie
BOVITA Project

Perspectives

Extension of this approach to all the Italian cattle breeds

More contrasted climate subtypes

Conservation status and historical relatedness of Italian cattle breeds

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Fig. 1 Geographic origin of the analyzed local Italian cattle breeds. Northern (green), Northern-central (orange), Podolian-derived (red) and Southern and islands (blue) breeds. For full definition of breeds (see Additional file 2: Table S1)
Objectives

1. Detecting footprints of selection in the genome of Mediterranean and Alpine cattle breeds

2. Detecting regions and candidate genes under selection associated with climate

3. Identifying the main functions in which candidate genes are involved
Materials and Methods

Combining SNPs genotypes with climatic and geographic parameters to identify candidate genes for adaptative physiological characteristics

Genomic data 54 000 ~ SNPs

Genome-Environment Association
Bayesian modelling using BayPass software (Gautier, 2015)

Geographical and Climatic Parameters

Genome scan for footprints of selection
BayPass software (Gautier, 2015)
RESULTS

Global gene network including 55 genes associated with at least one climatic covariable.


THANKS FOR YOUR ATTENTION