

## Breeding for mastitis resistance in sheep and goats

A.I. Katsafadou and G.C. Fthenakis

University of Thessaly, Greece

Breeding for mastitis resistance supports control of the disease in a sustainable way, whilst improving farmers' income and welfare of animals. Heritability of mastitis resistance in small ruminants is around 0.15.  $h^2$  values for somatic cell counts are 0.04-0.24, depending on breed. Genetic markers associated with resistance to mastitis are different from those for decreased somatic cell counts. Markers identified in the chromosome with genes responsible for the major histocompatibility complex (MHC) can be used for mastitis resistance; the MHC has a significant participation in animal's defences, by regulating lymphocyte mobilisation and immunoglobulin production. Genes as indicators of mastitis are the MHC class II DRB3 alleles. Nevertheless, environmental conditions (e.g., hand- versus machine-milking) may play a role in pathogenesis of the disease (e.g., entrance of pathogens into the teat, integrity of local defence mechanisms). Various breeds (sheep: French Manech red faced, Greek Karagouniko, Norwegian Spel, Finnish Landrace, French Rambouillet; goats: Small East African) are considered with resistance to mastitis. High milk-yielding breeds have increased susceptibility to mastitis. There is a scope for mastitis inclusion in breeding objectives of small ruminant improvement programs and implementation of selection criteria in breeding for mastitis resistance. Genomics studies can provide information regarding gene expression in selection traits. Work in this presentation has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement 245140 ('3SR'). This publication reflects only the author's views. The European Commission is not liable for any use that may be made of the information contained therein.

### Biography

A.I. Katsafadou has a DVM degree from University of Thessaly, Greece, and a MS from Agricultural University of Athens, Greece. Currently, she undertakes PhD studies at the University of Thessaly and the Biomedical Foundation of the Academy of Athens, where she is working in the field of application of 'omic' technologies in veterinary medicine.

agkatsaf@vet.uth.gr