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Zaragoza



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Research Centre for TSE and Emerging Transmissible Diseases. Veterinary Faculty

Towards breeding of goats for genetically determined TSEs resistance

Acronym: GOAT-TSE-FREE

National Working Document: Spain UNIZAR

Introduction

From several years to date, it is recognised that polymorphisms of the *PRNP* gene are responsible of certain susceptibility or resistance to the development of certain prion disease. It is demonstrated that in sheep classical scrapie the genotype A¹³⁶R¹⁵⁴R¹⁷¹ confers resistance to the disease, whereas VRQ is the most susceptible haplotype to acquire the disease.

European Union legislation in force has started breeding programmes based on the selection of resistant animals to classical scrapie disease in sheep. In case of goats, the association of genetic variability seems to be more complex than in sheep, probably because there is less experience on this topic in this specie and because there are less affected goats than sheep.

Recent studies relate polymorphism at codon Q222K as an allele-selective target for resistant breeding programs.

This document reveals the strategies planned by the European Project: Towards breeding of goats for genetically determined TSEs resistance (GOAT-TSE-FREE) to achieve:

- a) Education programme for Spanish breeders.
- b) Involvement of stakeholders (producers, breeders, and policy makers).
- c) Collection of samples.
- d) Searching resistant 222K specimens.



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f) Safeguarding 222K specimens.

g) Multiplication plans.

Actions

1. Education and involvement of stakeholders

Agreement between the University of Zaragoza and goat breed association in order to:

- Perform collaborative research activities.
- Display meetings, seminars, and conferences for the exchange of information among specialists.
- Performance of work on scientific, technical, or artistic, as well as for the development of teaching expertise or specific training activities, actions covered under Art. 83 of Law 6/2001, Organic Law of Universities.
- Carrying out the genotyping of *PRNP* gene in order to assess their status of resistance or susceptibility to scrapie disease.
- Definition of the 222K frequency in goat breed population.
- Promote the maintenance of these animals for reproduction and so transmit that resistance.

2. Collection of samples and searching 222K

- Sampling and genotyping of specimens.
- Statistical studies on the polymorphisms found.
- Publication of results.

3. Safeguarding and multiplication of 222K specimens

- Maintenance and breeding of resistant animals (if animals were not selected for the partnership interest, UNIZAR would be taken care of).



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