TITLE OF THE PROJECT

Nutritional regulation of mammary lipogenesis in sheep: mechanisms underlying milk fat depression

FUNDING BODY and PROJECT REFERENCE

Council of Castile and Leon. CSI023U13

START and END DATE

2013-2016.

PARTICIPATING ENTITIES

Instituto de Ganadería de Montaña (*Mountain Livestock Farming Institute*, IGM). Spanish National Research Council (CSIC) and University of Leon (ULE).

Industrias de Nutrición Animal, Ltd. (*Industries of Animal Nutrition*, Ltd., INATEGA)

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SUMMARY

Supplementation of dairy ewe diet with marine lipids (e.g., marine algae) allows to modulate fatty acid profile in milk and to improve its health-promoting properties for consumers. However, this feeding strategy also exerts negative effects on animal performance, resulting in milk fat depression (MFD). Thus, an improved understanding of the MFD syndrome, through a better knowledge on molecular mechanisms underlying nutritional regulation of mammary lipogenesis, may be of great relevance to tackle the problem. This research project proposes two specific aims: 1) To investigate potential diet-induced changes in the expression of candidate genes involved in mammary lipogenesis and 2) To study the contribution of the mechanisms regulating milk fat fluidity during marine lipid-induced MFD. The experimental trials will be performed in vivo with lactating sheep.

Achieving these goals would make it possible to establish a framework to enhance health-promoting properties of ovine milk fat without impairing animal performance, which is a key objective for the agri-food sector (particularly for livestock farming). Moreover, it would generate very valuable and novel scientific information due to its scarcity not only in sheep but also in other ruminant species.