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POSTER

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MIGLIOR POSTER AMV - SISVET 2021**P149 - Localization of leptin in the abomasum of the sheep: an immunohistochemical study**

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Adipokines are molecules involved in energy metabolism and represent important links between the nutritional status and neuroendocrine axis [1]. Leptin (Ob) is the first isolated adipokine [2] and it is one of the most important hormones involved in the control of energy homeostasis and feeding behaviour. It serves to signal nutritional status to the central nervous system and peripheral organs and, in physiological condition, it acts to reduce appetite [3]. Ob is primarily secreted by adipocytes of subcutaneous and visceral fat but it is also produced by several peripheral tissues [4]. This work aimed to investigate the presence and localization of Ob in the fundic region of the abomasum of the sheep in an attempt to shed light on those cells and structures that might locally produce this peptide. Sample collection was performed on a flock of 15 Comisana x Appenninica adult female sheep reared in a semi-natural pasture of the Italian Central Apennines. The research was approved with no. of approval 95/2018-PR by the Ministry of Health. Samples were fixed in 10% neutral-buffered formalin and processed until paraffin inclusion. Histological sections of 5 µm were microwaved in 10 mM citric acid (pH 6.0) for antigen retrieval. The endogenous peroxidase activity was blocked with a 3% peroxidase-blocking solution and non-specific binding was blocked with normal horse serum. Sections were incubated first with mouse monoclonal anti-Ob-antibody (1:150 in PBS, Fitzgerald Industries International, MA, USA) for 24 hours and successively with the horse anti-mouse biotin-conjugated antibody. The reaction was detected with a Vectastain ABC kit and visualized with diaminobenzidine. For the first time, we document that Ob is localized in the abomasum of sheep. An intense positivity to Ob was evidenced in the gastric glands of the mucous layer; leptin binding sites were mainly localized in the lower half of the fundic glands. The staining for Ob was localized in the cytoplasm of the cells. Leptin detection in the gastric glands suggests a local activity of this adipokine in the regulation of the digestive function, as already attested in other species including humans [4]. This study is a preliminary report that introduces Ob investigation in the sheep digestive system; it represents the starting point to carry out further investigations aimed to evaluate the influence of the diet on the molecule expression in sheep reared in the semi-extensive regime, as well as to search the presence of Ob receptor.

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