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Analysis of sheep SERPINA1 gene expression in milk during lactation

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The serine protease inhibitor, clade A, member 1 (SERPINA1) is the gene for a protein called alpha-1-antitrypsin (AAT) which is a member of the serine protease inhibitor (serpin) super family of proteins. Alpha-1-antitrypsin (AAT) is a 394-aa protein synthesized primarily by hepatocytes with smaller amounts synthesized by intestinal epithelial cells, neutrophils, pulmonary alveolar cells and macrophages. AAT is the most abundant, endogenous serine protease inhibitor in blood circulation and its primary function is the inactivation of neutrophil elastase and other endogenous serine proteases. AAT is also present in relatively high concentration in human (in early lactation with a subsequent decrease as lactation progresses) bovine, porcine and ovine milk. It has postulated that milk AAT might affect local proteolytic activity within the mammary gland during colostrum formation. Association of polymorphisms of the AAT gene with milk production traits in dairy cattle was demonstrated while goat SERPINA1 gene was up-regulated during early stages of bacterial infection. Here we analyzed the differential expression in milk of SERPINA1 cDNAs in two sheep breed (Sarda e Gentile di Puglia) during lactation (60, 90, 120 days). We evaluated 7 different reference genes in sheep milk to select the most stable housekeeping gene in three time points. However, we did not find any significant difference between Sarda e Gentile di Puglia and between three time points with respect to SERPINA1 expression in milk. No association of SERPINA1 expression with milk production traits was observed.

Biography

Cinzia Marchitelli has graduated in 1992 in Biological Sciences from Università degli Studi di Roma and she has completed her PhD in 2000 in Biotechnology and Genetic improvement of domestic animals from Università degli Studi del Molise Molise. She is a Researcher at CRA-PCM and her research interest is the application of molecular biology to animal production. She is a Leader of Research Unit of EU Project GplusE "Genotype plus Environment" and of an Italian Project "REDBOV-"Increase of profitability by improvement of technical and biological parameters". She is the author and co-author of more than 20 peer-reviewed papers.

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