



Expressional analysis of immune-related miRNAs in breast milk

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ABSTRACT. Immune-related miRNAs in breast milk are extracellular miRNAs that are related to immune organ development and regulation of the immune function in infants and young animals. The goal of this study was to compare the expression levels of five immune-related miRNAs in breast milk in black goats, humans, and dairy cattle. The miRNAs from milk were extracted and the expression levels were assessed using quantitative RT-PCR methods. MiR-146, miR-155, miR-181a, miR-223, and miR-150 were all detected in Dazu black goat milk, and these miRNAs were significantly more highly expressed in colostrum than in mature milk of goats ($P < 0.01$), except for miR-150. Further, all five miRNAs were expressed in human colostrum, but patterns differed from those in goats: miR-146 and miR-155 were highly expressed ($P < 0.01$) in human colostrum, whereas miR-223 was abundant in goat colostrum ($P < 0.01$). In addition, five miRNAs were significantly higher in bovine mature milk than in goat milk ($P < 0.01$). Taken together,

these results confirm that immune-related miRNAs are rich in breast milk with different expression levels depending on the lactation phase and species.

Key words: MicroRNA; Colostrum; Mature milk; Goat