

Study of Milk Exosomes Nucleic Acids

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Exosomes are nanovesicles contained in various biological fluids and participating in intercellular communication. The biochemical compound of exosomes demonstrates the presence of various nucleic acids, in particular, microRNA and mRNA. In this regard, exosomes are promising candidates for developing new drug delivery vehicles in personalized medicine. Among all biological fluids containing exosomes, milk is the only available on an industrial scale; therefore, the analysis of nucleic acids in milk exosomes is an urgent task.

A modified protocol was applied to isolate milk exosomes, including several stages of centrifugation, ultrafiltration, ultracentrifugation, and gel chromatography.

Simultaneously, the absolute amount of 20 different types of microRNA was determined in the fat fraction of bovine, goat, and horse milk. For these microRNAs, specific patterns of relative expression were determined in each type of milk. Further studies of the miRNA composition of milk fractions will reveal specific miRNA markers for each of the studied species.

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