Influence of microRNAs and exosomes in muscle health and diseases.

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Abstract
microRNAs are short, (18-22 nt) non-coding RNAs involved in important cellular processes due to their ability to regulate gene expression at the post-transcriptional level. Exosomes are small (50-200 nm) extracellular vesicles, naturally secreted from a variety of living cells and are believed to mediate cell-cell communication through multiple mechanisms, including uptake in destination cells. Circulating microRNAs and exosome-derived microRNAs can have key roles in regulating muscle cell development and differentiation. Several microRNAs are highly expressed in muscle and their regulation is important for myocyte homeostasis. Changes in muscle associated microRNA expression are associated with muscular diseases including muscular dystrophies, inflammatory myopathies, and congenital myopathies. In this review, we aim to highlight the biology of microRNAs and exosomes as well as their roles in muscle health and diseases. We also discuss the potential crosstalk between skeletal and cardiac muscle through exosomes and their contents.
KEYWORDS: Cardiac muscle; Exosomes; Neuromuscular disease; Skeletal muscle; microRNAs

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