SRSF1 Regulates Exosome microRNA Enrichment in Human Cancer Cells

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Video Byte

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Abstract

Exosomes are extracellular vesicles that can be transferred from cancer cells to surrounding cells in the tumor microenvironment. Despite their tiny size, exosomes have a huge effect on cell-to-cell communication, facilitating tumor progression and contributing to metastasis. Their widespread effects have drawn the attention of scientists hoping to develop new cancer therapies. A recent study focused on a specific type of exosome cargo – microRNAs (miRNAs), which can act as nucleic acid messengers between cells. Certain miRNAs are known to be enriched in cancer cell exosomes, but how this enrichment occurs is unclear. Using a pancreatic cancer cell line, researchers identified RNA-binding proteins that could bind to a common cancer-associated miRNA, miR-1246. They found that the protein SRSF1 could bind strongly with miR-1246. Reducing SRSF1 expression decreased the enrichment of miRNAs in exosomes, while overexpressing SRSF1 enhanced the enrichment. A common motif was shared by many SRSF1-associated exosome miRNAs, and using decoys for the consensus motif inhibited binding of SRSF1 to miR-1246. These results provide insight into the cellular processes initiating miRNA signaling via exosomes and suggest new targets for developing therapeutic measures against cancer.