Extracellular RNA as markers and effectors: their roles in physiology and pathology

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One of the main foci of the Galas Lab has been to understand the role of small non-coding RNAs in biology. In particular, they have investigated the source and function of extracellular RNAs that circulate in human plasma. These molecules represent part of a cell-cell communication system. They have investigated several areas: 1. What stimulates and how does RNA move from cells into the extracellular spaces. 2. What’s the spectrum of circulating RNA, and which cells contribute? 3. Finally, what can methods like RNA-Seq tell us about diversity and quantitation? The quantitation of RNA spectra presents unexpected difficulties, but it has become clear that non-human RNA is present in significant quantities in plasma. Their work emphasizes characterization of RNA spectra for the multiple purposes of identifying biological clues to function, pathways of communication, and potential diagnostic and predictive biomarkers.