

The role of exosomal non-coding RNAs in Colorectal cancer drug resistance

Colorectal cancer (CRC) is one of the most common types of gastrointestinal cancers and the third most common cancer diagnosed worldwide. Chemotherapy remains the backbone of treatment for CRC progression. However, therapy resistance has been a major barrier against successful treatment, especially if the disease is diagnosed in advanced stages. Nevertheless, the exact underlying mechanisms that lead to CRC cell proliferation and chemotherapy resistance remain under investigation. Exosomes are a class of small extracellular vesicles which are being released in almost all mammalian cell types. They have emerged as crucial mediators of the tumor microenvironment heterogeneity and have a significant role in the transportation of essential cargos, such as cancer-related signaling molecules. NcRNAs represent a class of functional RNA with distinct regulatory effects in tumorigenesis and cancer progression. Exosomes seem to transfer nucleic acids from drug-resistant to drug-sensitive cells, expanding the resistance ability among cancer cells. On the other hand, exosomes possess many desirable features of an ideal drug delivery vehicle, such as biological barrier permeability, long circulating half-life, biocompatibility, minimal immunogenicity and toxicity, as well as intrinsic targeting capability. In light of the above, we will sum up and discuss the functions of exosomal ncRNAs in CRC drug resistance and response.