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## EXOSOMAL MIRNA ASSOCIATED WITH THE INTERACTION OF ADIPOSE-DERIVED MESENCHYMAL STEM CELLS AND BREAST CANCER CELL LINES

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### SUMMARY

Mesenchymal stem cell (MSC) has been reported to migrate to tumor niches and interact with cancer cells via exosomes. Previous studies have shown that cancer relapse is associated with a rare population of cells known as cancer stem cell (CSC) arising within the tumor niche. As such, studies within the tumor microenvironment is essential for the more in-depth understanding of the potential influence of exosomal miRNA which have been known to selectively take part in cancer progression and induction of CSC population leading to the development of chemotherapy resistance and metastasis. Therefore, the aims of this study were to assess the presence and distribution of adipose MSC and breast cancer co-culture-derived exosomal miRNAs and their potential influence on metastatic and CSC properties of breast cancer cells, MDA-MB-231 and MCF7.

Exosomes from co-culture supernatant of MSC and MDA-MB-231/MCF7 cells were isolated and characterized for specific protein markers. Metastatic and CSC properties with studied and the distribution of miRNAs of cellular and exosomes from the co-cultured environment were profiled using next generation sequencing (NGS).

Adipose MSC inhibited the proliferation and invasion of MDA but did not exert similar effect on MCF7 cancer cells. MDA cell post co-culture showed higher ability to form spheroids and high expression level of aldehyde dehydrogenase, Oct, Sox-2 and Nanog compared to that of MCF7. NGS revealed different miRNAs expression patterns between MDA and MCF7 cells which might be linked to the metastatic and CSC transition properties of the cells.