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FOXP3-mediated Transcriptional Regulation of MicroRNAs in breast cancer

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MicroRNAs (miRs) have potential as non-invasive biomarkers, but their relevance as biomarkers is limited by inconsistent results, and their regulatory mechanisms remain elusive. In the present study, our results show that the levels of miR-200c and 141 in tumor cells and in circulation differ for mice and for humans between cases with metastatic breast cancer, cases with localized breast cancer, and healthy female controls. The levels of miR-200c and 141 are low in primary tumor cells but are high in the circulation of patients with metastatic breast cancer. Further, we suggest the potential cell origin of circulating miR-200c and 141 and describe their transcriptional regulation in cultured cells and during tumor progression in animal models of spontaneous breast cancer. These results could provide useful insights in early prediction of tumor metastasis and influence treatment strategies for patients at high risk of developing metastatic breast cancer.

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