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MicroRNA-9, microRNA-15b and microRNA-205 as biomarkers and metastasis regulators related to BRAF pathway genes in malignant melanoma**Parisa Sahranavardfard**

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MicroRNAs are involved in the regulation of processes leading to tumorigenesis such as EMT in a variety of cancers and also they are appropriate option for the diagnosis and treatment of malignancies. Moreover, microRNAs can regulate BRAF expression which has very prevalent mutation in melanoma and involved in tumor metastasis. In order to determine expression levels of EMT and BRAF related microRNAs, we investigated the expression of 18 microRNAs in the patient samples with melanoma. To identify the microRNAs related to EMT process and BRAF pathway, we analyzed a publicly available data set for microRNA expression by using bioinformatics databases (miRTarBase, targetscan, miRWalk, and miRCancer). Then we focused on the ones which have differential expression in malignant melanoma. Subsequently we analyzed the expression levels of 18 selected microRNAs in patient biopsies (N=20) and tumor adjacent normal and evaluated six of them in patients' serum (N=10) by quantitative qRT-PCR. The expression levels of six microRNAs were significantly different in samples ($p < 0.05$). MiR-205, miR-141, miR-203 and miR-15b showed significant down-regulation and miR-9 and miR-21 were up-regulated in tumor samples compared to normal adjacent tissues. Based on machine learning analysis and integrative bioinformatics analysis in the context of gene regulatory networks, we selected miR-15b and miR-205 as key regulator of healthy and malignant status. Serum expression of miR-9, miR-15b and miR-205 were significantly different. The expression pattern of miR-205 and -9 was the same as tumor samples but miR-15b in contrast with tumor samples was up-regulated. The data presented at this study suggested that the expression pattern of microRNAs has potential for the use of them as diagnostic and predictive biomarkers in cancers.

Biography

Parisa Sahranavardfard received her MSc in Animal Physiology from Tehran University in 2009. Currently, she is a PhD student in Animal Physiology in Royan Institute and working on her PhD thesis "Manipulation of microRNAs expression involved in EMT process in human melanoma" under the supervision of Dr. Marzieh Ebrahimi.

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