Abstract

MicroRNAs (miRNAs) are small non-coding RNAs that regulate gene expression. MiRNA expression profiles showed several differentially expressed miRNAs specific to human papillomavirus (HPV)-associated tumors. These miRNAs include miR-139-5p, which has reduced expression in these tumors. In this thesis, the role of miR-139-5p was studied *in vitro* on cell lines that were HPV positive (CRL-3240, SiHa) and HPV negative (FaDu, C-33A). Cell lines were transfected with mimic miRNA, the ability of cells to proliferate and migrate was then studied. Cell proliferation was studied using MTT assay, while Scratch wound healing assay and transwell assay were used to evaluate the migratory abilities of the cells. Mediator RNAs (mRNAs) of target genes of miR-139-5p were predicted using TargetScan and miRDB databases. The change in gene expression of target mRNAs, as well as the verification of the successful increase in miRNA expression in the cell lines, was verified using RT-qPCR. Increase of miR-139-5p expression in all used cell lines did not lead to statistically significant changes ($p \leq 0.05$) in proliferative or migratory abilities. The mRNAs of *FOS, JUN, KIF13A* and *GDF10* genes were selected as targets of miR-139-5p. Transfected cell lines did not show a noticable reduction in the expression of the target mRNAs. On the contrary, in the SiHa cell line, the expression of *FOS* mRNA increased after transfection.