World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:14, No:08, 2020

The MicroRNA-2110 Suppressed Cell Proliferation and Migration Capacity in Hepatocellular Carcinoma Cells

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Abstract : Introduction: ZEB transcription factor family member ZEB2, has a role in epithelial to mesenchymal transition during development and metastasis. The altered circulating extracellular miRNAs expression is observed in diseases, and extracellular miRNAs have an important role in cancer cell microenvironment. In ChIP-Seq study, the expression of miR-2110 was found to be regulated by ZEB2. In this study, the effects of miR2110 on cell proliferation and migration of hepatocellular carcinoma (HCC) cells were examined. Material and Methods: SNU398 cells transfected with mimic miR2110 (20nM) (HMI0375, Sigma-Aldrich) and negative control miR (HMC0002, Sigma-Aldrich). MicroRNA isolation was accomplished with miRVANA isolation kit according to manufacturer instructions. cDNA synthesis was performed expression, respectively, and calibrated with Ct of controls. The real-time quantitative PCR (RT-qPCR) reaction was performed using the TaqMan Fast Advanced Master Mix (Thermo Sci.). Ct values of miR2110 were normalized to miR-186-5p and miR16-5p for the intracellular gene. Cell proliferation analysis was analyzed with the xCELLigence RTCA System. Wound healing assay was analyzed with the ImageJ program and relative fold change calculated. Results: The mimic-miR-2110 transfected SNU398 cells nearly nine-fold (log2) more miR-2110 expressed compared to negative control transfected cells. The mimic-miR-2110 transfected HCC cell proliferation significantly inhibited compared to the negative control cells. Furthermore, miR-2110-SNU398 cell migration capacity was relatively four-fold decreased compared to negative control-miR-SNU398 cells. Conclusion: Our results suggest the miR-2110 inhibited cell proliferation and also miR-2110 negatively affect cell migration compared to control groups in HCC cells. These data suggest the complexity of microRNA EMT transcription factors regulation. These initial results are pointed out the predictive biomarker capacity of miR-2110 in HCC.

Keywords : epithelial to mesenchymal transition, EMT, hepatocellular carcinoma cells, micro-RNA-2110, ZEB2
Conference Title : ICBCM 2020 : International Conference on Biomarkers and Clinical Medicine
Conference Location : Dublin, Ireland
Conference Dates : August 17-18, 2020