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Modena, 11-13 settembre 2023

**76TH MEETING
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Epithelial cell adhesion modulation *via* hsa-microRNA-1249-3p/ Homeobox A13 Axis

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The intercellular adhesion is a key function for epithelial cells. The fundamental mechanisms relying on epithelial cell adhesion have been partially uncovered. Recent evidence indicates this process under the micro-RNAs (miRNAs) regulation. Hsa-microRNA-1249-3p (hsa-miR-1249-3p) plays a role in the epithelial mesenchymal transition in carcinoma cells, but its biological function in epithelial cells is unknown. The purpose of this study was to investigate the functional role of hsa-miR-1249-3p in epithelial cell adhesion. The hsa-miR-1249-3p expression was evaluated by droplet digital PCR in epithelial HaCaT and NCTC cells and in cervical carcinoma SiHa, CaSki and HeLa cells, used as control. Hsa-miR-1249-3p mimic and inhibitor transfections in HaCaT cells were carried out to assess hsa-miR1249-3p regulatory function on Homeobox A13 (HOXA13) target gene and its downstream gene β -catenin. Upon transfections, cell proliferation, colony forming potential, migration and apoptosis were assessed. The expression of the cell adhesion marker E-cadherin was tested. Hsa-miR-1249-3p expression was higher in epithelial cells compared to carcinoma cells. Hsa-miR-1249-3p inhibition prompted the expression of HOXA13 which, in turn, favored the expression of β -catenin paralleled with a downregulation of the adhesion marker E-cadherin. An increased colony forming capability in miR-inhibited cells was shown, while no change was detected in cell proliferation, migration, and apoptosis. Epithelial cell adhesion might be under regulation of hsa-miR-1249-3p by modulating HOXA13 gene expression and its downstream gene β -catenin. Our study provides novel insights into the miRNA-based mechanisms which control epithelial cell adhesion.

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