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Hsa-miR-139-5p Acts as a Tumor Suppressor by Targeting C-Met in Non-Small Cell Lung Cancer

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Abstract : Hsa-miRNA-139-5p (miR-139-5p) has recently been discovered having anticancer efficacy in different organs. However, the role of miR-139-5p on lung cancer is still ambiguous. In this study, we investigated the role of miR-139-5p on development of lung cancer. Results indicated miR-139-5p was significantly down-regulated in primary tumor tissues and very low levels were found in a non-small cell lung cancer (NSCLC) cell lines. Ectopic expression of miR-139-5p in NSCLC cell lines significantly suppressed cell growth through inhibition of cyclin D1 and up-regulation of p57(Kip2). In addition, miR-139-5p induced apoptosis, as indicated by up-regulation of key apoptosis gene cleaved caspase-3, and down-regulation of anti-apoptosis gene Bcl2. Moreover, miR-139-5p inhibited cellular metastasis through inhibition of matrix metalloproteinases (MMP)-7 and MMP-9. Further, oncogene c-Met was revealed to be a putative target of miR-139-5p, which was inversely correlated with miR-139-5p expression. Taken together, our results demonstrated that miR-139-5p plays a pivotal role in lung cancer through inhibiting cell proliferation, metastasis, and promoting apoptosis by targeting oncogenic c-Met.

Keywords : hsa-miRNA-139-5p (miR-139-5p), c-Met, non-small cell lung cancer (NSCLC), proliferation, apoptosis
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