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MicroRNA-154-5p suppresses the growth and metastasis of cervical carcinoma by directly targeting Cullin2 both *in vitro* and *in vivo*

Yaqin Li
Shanxi Medical University, China

Statement of the Problem: MicroRNA-154-5p (miR-154-5p) plays a role in tumor genesis in diverse human malignancies. It showed a down regulation in cervical cancer tissues. Bioinformatics predictions indicated that Cullin2 (CUL2), aubiquitin ligase implicated in a classic mechanism (HPV16 E7-pRb pathway) of cervical carcinogenesis, was a functional linking target of miR-154-5p. Yet, the mechanism by which miR154-5p adjusts the growth and metastasis of cervical cancer remains unclear. The purpose of this research was to probe the part of miR-154-5p targeting CUL2 in the pathology of cervical cancer, both in vitro and in vivo.

Methodology & Theoretical Orientation: The levels of miR-154-5p in cervical tumor samples and cells were examined by RT-qPCR. Furthermore, lenti viral technology was conducted to construct SiHa cell lines with stable high and low expression levels of miR-154-5p. The affects of differential expression of miR-154-5p on the evolution and metastasis of cervical carcinoma were analyzed using cell culture and animal modles. Findings: MiR-154-5p showed a down regulation in cervical cancer samples and cells. We successfully created a stable miR-154-5p-expressing SiHa cell lines. In vivo experiments employing xenograft mouse tumor bearing and tail vein injection metastasis modles illustrated that over-expression of miR-154-5p restrained the development and metastasis of cervical cancer, while low-expression of miR-154-5p indicated the opposite influence. Additionally, miR-154-5 produced the level of CUL2, and overexpression of CUL2inverted the influence of miR-154-5p in cervical cancer.

Conclusion & Significance: MiR-154-5p inhibited the growth and metastasis of cervical cancer by directly targeting CUL2. This work provides new research data for miRNAs to play a part in cervical carcinogenesis via the regulation of key proteins in the carcinogenic pathway of HPV infection, and opens up new ideas for molecular targeted therapy of cervical cancer.

Recent Publication

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18729984156@163.com