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Analysis of the Therapeutics Effects of miR-126 on Proliferation, Migration and Invasion of Uterine Leiomyoma Cells

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SUMMARY. **The purpose of this study was to investigate the effect of miR-126 on the proliferation, migration and invasion of uterine leiomyoma cells as well as on the growth of xenografts. The expression of miR-126 in uterine leiomyoma tissue and adjacent tissue was detected by qRT-PCR. The uterine leiomyoma cells were primarily isolated and cultured, and miR-NC and miR-126 mimics were respectively transfected into the uterine leiomyoma cells. The cell viability was detected by MTT assay. Cell migration and invasion were detected by Transwell cell assay. The expression levels of CyclinD1, MMP2 and MMP9 proteins were detected by Western blot. The miR-126 lentivirus vectors (LV-miR-126 and LV-NC) were constructed and transfected into uterine fibroid cells, respectively, to establish a mouse xenograft uterine fibroid model, and to detect the volume and infiltration rate of the xenografts. The positive rates of CyclinD1, MMP2 and MMP9 proteins in the xenografts were detected by immunohistochemistry. Compared with the adjacent tissues, the expression level of miR-126 in uterine leiomyoma tissues was decreased ($p < 0.05$). Compared with the miR-NC group, the cell viability was decreased, the number of migrated and invaded cells was decreased and the protein levels of CyclinD1, MMP2 and MMP9 were decreased in the miR-126 group. Compared with the LV-NC group, the expression level of miR-126 in the LV-miR-126 group was increased ($p < 0.05$), the volume of the transplanted tumor was decreased, the infiltration rate was decreased and the positive rates of CyclinD1, MMP2 and MMP9 proteins were decreased. These finding suggest that the overexpression of miR-126 weakens the proliferation, migration and invasion of uterine fibroid cells, and inhibits the growth of xenografts uterine fibroid in mice.**

RESUMEN. El propósito de este estudio fue investigar el efecto de miR-126 en la proliferación, migración e invasión de células de leiomioma uterino, así como en el crecimiento de xenoinjertos. La expresión de miR-126 en tejido de leiomioma uterino y tejido adyacente se detectó mediante qRT-PCR. Las células de leiomioma uterino se aislaron y cultivaron principalmente, y los miméticos miR-NC y miR-126 se transfectaron respectivamente en las células de leiomioma uterino. La viabilidad celular se detectó mediante ensayo MTT. La migración e invasión celular se detectaron mediante el ensayo de células Transwell. Los niveles de expresión de las proteínas CyclinD1, MMP2 y MMP9 se detectaron mediante transferencia Western. Los vectores de lentivirus miR-126 (LV-miR-126 y LV-NC) se construyeron y transfectaron en células de fibroma uterino, respectivamente, para establecer un modelo de fibroma uterino de xenoinjerto de ratón y para detectar el volumen y la tasa de infiltración de los xenoinjertos. Las tasas positivas de proteínas CyclinD1, MMP2 y MMP9 en los xenoinjertos se detectaron mediante inmunohistoquímica. En comparación con los tejidos adyacentes, el nivel de expresión de miR-126 en los tejidos de leiomioma uterino disminuyó ($p < 0,05$). En comparación con el grupo miR-NC, la viabilidad celular disminuyó, el número de células migradas e invadidas disminuyó y los niveles de proteína de CyclinD1, MMP2 y MMP9 disminuyeron en el grupo miR-126. En comparación con el grupo LV-NC, el nivel de expresión de miR-126 en el grupo LV-miR-126 aumentó ($p < 0,05$), disminuyó el volumen del tumor trasplantado, disminuyó la tasa de infiltración y las tasas positivas de Las proteínas CyclinD1, MMP2 y MMP9 estaban disminuidas. Estos hallazgos sugieren que la sobreexpresión de miR-126 debilita la proliferación, migración e invasión de células de fibroma uterino e inhibe el crecimiento de xenoinjertos de fibroma uterino en ratones.

KEY WORDS: migration, miR-126, proliferation, uterine fibroids.

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