

عنوان مقاله:

N-myc downstream regulated gene 2 overexpression reduces matrix metalloproteinase-2 and -9 activities and cell invasion of A549 lung cancer cell line in vitro

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خلاصه مقاله:

Objective(s): N-myc downstream regulated gene 2 (NDRG2) is a candidate gene for tumor suppression. The expression of NDRG2 is down-regulated in several tumors including lung cancer. The aim of this study was to explore the effect of NDRG2 overexpression on invasion, migration, and enzymatic activity of matrix metalloproteinase-2 (MMP-2) and -9 (MMP-9) in human lung adenocarcinoma A549 cells. **Materials and Methods:** A recombinant plasmid encoding green fluorescent protein (GFP)-tagged NDRG2 (pCMV6-AC-NDRG2-GFP) was used to overexpress GFP-tagged NDRG2 in A549 cells. The cells in the experimental group and those in the control group were transfected with pCMV6-AC-NDRG2-GFP and a control plasmid without NDRG2 (pCMV6-AC-GFP), respectively. Fluorescent microscopy and flowcytometry analysis of GFP expression were used to evaluate the cellular expression of GFP-tagged NDRG2 and the efficiency of transfection. The effects of NDRG2 expression on cell invasion and migration were evaluated using transwell filter migration assay. The gelatinase activity of secreted MMP-2 and MMP-9 was measured by gelatin zymography. **Results:** Our results demonstrated the expression of GFP-tagged NDRG2 in the cytoplasm and nucleus of A549 cells. The findings of transwell assay showed that NDRG2 overexpression reduced migration and invasion of A549 cells compared to control cells. Gelatin zymography analyses revealed that NDRG2 overexpression decreased the gelatinase activity of secreted MMP-2 and MMP-9. **Conclusion:** These findings suggest that NDRG2 may be a new anti-invasion factor in lung cancer that inhibits MMPs activities.

کلمات کلیدی:

Invasion, Lung cancer, Matrix metalloproteinase, Migration, N-myc downstream-regulated gene 2

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