沉默HOXC10基因促进骨肉瘤MG-63细胞凋亡及其机制

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Title: **HOXC10 gene silencing promotes apoptosis of osteosarcoma MG-63 cells and its mechanism**

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摘要: 目的：探讨沉默同源框C10（Homeobox C10，HOXC10）基因表达对骨肉瘤细胞MG-63细胞增殖和凋亡的影响，并初步探讨可能的作用机制。方法：采用脂质体转染法将特异性针对HOXC10基因的shRNA转入骨肉瘤MG-63细胞（HOXC10-shRNA组），同时以转染Scramble-shRNA作为对照组（Scramble-shRNA组），分别应用实时荧光定量PCR及蛋白质印迹法检测HOXC10 mRNA及蛋白的表达水平。转染处理后，分别采用CCK-8法及FCM法检测骨肉瘤MG-63细胞的增殖抑制率及凋亡情况，采用蛋白质印迹法检测HOXC10、ATM和核因子-κB（nuclear factor kappa B，NF-κB)及凋亡相关蛋白Survivin和Caspase-3的表达水平。结果：HOXC10-shRNA转入MG-63细胞后，HOXC10 mRNA和蛋白的表达水平均明显下调（P均<0.05）。与Scramble-shRNA组细胞活力（0.95±0.12）%和凋亡率（4.35±0.52）%相比，HOXC10-shRNA组细胞活力（0.38±0.06）%明显下降，细胞凋亡率为（18.19±3.76）%明显升高（P均<0.05）；ATM/NF-κB信号通路中相关蛋白ATM、NF-κB及Survivin的表达水平均明显下调（P均<0.05），而Caspase-3表达明显上调（P<0.05）。结论：沉默HOXC10基因表达后可抑制骨肉瘤MG-63细胞增殖并促进其凋亡，其机制可能与调控ATM/NF-κB信号通路的活化相关。

Abstract: Objective：To investigate the effect of Homeobox C10（HOXC10) gene silencing on proliferation and apoptosis of osteosarcoma cell line MG-63，and to explore its possible mechanism.Methods：The specific sequence targeting HOXC10 gene（HOXC10-shRNA) was transfected into MG-63 cells，and Scramble-shRNA as control group，then the expression levels of HOXC10 mRNA and protein were detected by real-time fluorescent quantitative PCR and Western blotting，respectively.After transfection，the proliferation and apoptosis of MG-63 cells were detected by CCK-8 and FCM assay，respectively.Furthermore，the expression levels of ATM，nuclear factor-kappa B（NF-κB)，Survivin and Caspase-3 proteins were detected by Western blotting.Results：The expression levels of HOXC10 mRNA and protein in MG-63 cells transfected with HOXC10-shRNA were significantly down-regulated（both P<0.05).Compared with Scramble-shRNA group cell viability（0.95±0.12）% and apoptotic rate（4.35±0.52）%，cell viability in MG-63 cells transfected with HOXC10-shRNA（0.38±0.06）% were significantly inhibited（P<0.05)，while its apoptotic rate（18.19±3.76）% were markedly increased（P<0.05).The expression levels of ATM，NF-κB，and Survivin proteins were significantly down-regulated（all P<0.05)，while the expression level of Caspase-3 was significantly up-regulated（P<0.05) in HOXC10-shRNA group.Conclusion：HOXC10 gene silencing can inhibit proliferation and promote apoptosis of osteosarcoma cell line MG-63.The mechanism may be involved in inactivation of ATM/NF-κB signal pathway.

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备注/Memo: -

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