

长链非编码RNA MEG3对肝癌细胞增殖及自噬能力的影响

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Title: Investigation the influence of lncRNA MEG3 on proliferation and autophagy in HCC cells

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摘要: 目的: 探讨长链非编码RNA MEG3对肝癌细胞增殖及自噬能力的影响。方法: 实时定量PCR检测60例肝癌组织标本以及相应癌旁组织中MEG3的表达水平, 并检测MEG3在肝癌细胞系中的表达情况。通过质粒转染方法构建MEG3过表达的肝癌细胞Huh7和HepG2, 采用CCK-8法检测肝癌细胞增殖情况; Western blot检测自噬相关蛋白(LC3 II/I、p62)表达变化; 利用免疫荧光检测LC3变化情况。结果: MEG3在肝癌组织中表达低于癌旁组织, 差异有统计学意义($P < 0.05$)。肝癌细胞中过表达MEG3后, 其细胞增殖能力显著降低($P < 0.05$); 并且过表达MEG3后能减少LC3-I向LC3-II的转化, 而p62表达升高($P < 0.05$); 免疫荧光可见明显LC3荧光斑点减少。结论: 在肝癌组织中MEG3表达低于癌旁组织; 在体外细胞实验中发现, MEG3能够抑制肝癌细胞增殖和自噬水平, 有望成为肝癌治疗的潜在靶点。

Abstract: Objective: To investigate the influence of lncRNA MEG3 on proliferation and autophagy in HCC cells. Methods: Real-time PCR method was used to detect the expression profile of MEG3 in 60 HCC samples and HCC cell lines. CCK-8 assay was performed to investigate the effect of proliferation in HCC cells. Using Western blot and immunofluorescence method to detect the effect of MEG3 on autophagy. Results: The expression of MEG3 was significantly downregulated in HCC tissues and cells ($P < 0.05$). After overexpression of MEG3 in HCC cells, the proliferation of HCC cells was significantly decreased. And the expression of LC3-I to LC3-II was reduced ($P < 0.05$). Moreover, the immunofluorescence assay showed overexpression of MEG3 could decrease the LC3 fluorescence points. Conclusion: The expression of MEG3 in liver cancer tissue is lower than normal tissue. In vitro, MEG3 can inhibit the proliferation and autophagy of HCC cells. It is expected to be a potential target for the treatment of HCC.

参考文献/REFERENCES

- [1] Ingle PV, Samsudin SZ, Chan PQ, et al. Development and novel therapeutics in hepatocellular carcinoma: A review [J]. Ther Clin Risk Manag, 2016, 12(4): 45-55.
- [2] Torre LA, Bray F, Siegel RL, et al. Global cancer statistics, 2012 [J]. CA Cancer J Clin, 2015, 65(2): 87-108.
- [3] Jiang P, Mizushima N. Autophagy and human diseases [J]. Cell Res, 2014, 24(1): 69-79.
- [4] Indelicato M, Pucci B, Schito L, et al. Role of hypoxia and autophagy in MDA-MB-231 invasiveness [J]. J Cell Physiol, 2010, 223(2): 359-368.
- [5] Li J, Yang B, Zhou Q, et al. Autophagy promotes hepatocellular carcinoma cell invasion through activation of epithelial-mesenchymal transition [J]. Carcinogenesis, 2013, 34(6): 1343-1351.
- [6] Bhan A, Soleimani M, Mandal SS. Long noncoding RNA and cancer: A new paradigm [J]. Cancer Res, 2017, 77(15): 3965-3981.
- [7] Schmitt AM, Chang HY. Long noncoding RNAs in cancer pathways [J]. Cancer Cell, 2016, 29(4): 452-463.
- [8] He Y, Luo Y, Liang B, et al. Potential applications of MEG3 in cancer diagnosis and prognosis [J]. Oncotarget, 2017, 8(42): 73282-73295.

- [9]Zhou Y, Zhang X, Klibanski A.MEG3 noncoding RNA: A tumor suppressor [J] .J Mol Endocrinol, 2012, 48(3): R45-53.
- [10]Ulitsky I, Bartel DP.lincRNAs: Genomics, evolution, and mechanisms [J] .Cell, 2013, 154(1): 26-46.
- [11]Chan JJ, Tay Y.Noncoding RNA: RNA regulatory networks in cancer [J] .Int J Mol Sci, 2018, 19(5): e1310.
- [12]Yu WD, Wang H, He QF, et al.Long noncoding RNAs in cancer-immunity cycle [J] .J Cell Physiol, 2018, 233: 6518-6522.
- [13]Hanly DJ, Esteller M, Berdasco M.Interplay between long non-coding RNAs and epigenetic machinery: Emerging targets in cancer [J] ?Philos Trans R Soc Lond B Biol Sci, 2018, 373(1748): 20170074.
- [14]Levy JMM, Towers CG, Thorburn A.Targeting autophagy in cancer [J] .Nat Rev Cancer, 2017, 17(9): 528-542.
- [15]Wen Jian, Wang Qian, Tu Wei.The role of autophagy in tumor treatment [J] .Modern Oncology, 2016, 24(16): 2633-2637. [温健, 王倩, 涂巍.自噬在肿瘤治疗中的作用 [J] .现代肿瘤医学, 2016, 24(16): 2633-2637.]
- [16]White E.The role for autophagy in cancer [J] .J Clin Invest, 2015, 125(1): 42-46.
- [17]Sun T.Long noncoding RNAs act as regulators of autophagy in cancer [J] .Pharmacol Res, 2018, 129(1): 51-55.

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