集缩素NCAPG表达对甲状腺癌细胞增殖和凋亡的影响及可能机制

《现代肿瘤医学》[ISSN:1672-4992/CN:61-1415/R] 期数: 2020年02期 页码: 206-209 栏目: 论著（基础研究） 出版日期: 2019-12-08

Title: **The effect and possible mechanism of non-SMC condensin I complex,subunit G (NCAPG) on thyroid cancer cell line B-CPAP cell proliferation and apoptosis**

作者: 李 剑; 李振东
中国医科大学肿瘤医院，辽宁省肿瘤医院头颈科，辽宁 沈阳 110042

Author(s): Li Jian; Li Zhendong
Department of Head and Neck Surgery,Cancer Hospital of China Medical University,Liaoning Cancer Hospital & Insititute,Liaoning Shenyang 110042,China.

关键词: NCAPG; 甲状腺癌; 增殖; 凋亡

Keywords: NCAPG; thyroid cancer; proliferation; apoptosis

分类号: R736.1

DOI: 10.3969/j.issn.1672-4992.2020.02.006

文献标识码: A

摘要: 目的：探讨集缩素NCAPG表达与甲状腺癌B-CPAP细胞增殖和凋亡的关系及可能的调控机制。方法:利用siRNA-NCAPG下调B-CPAP细胞NCAPG的表达，分别采用qRT-PCR、Western blot法检测转染组与对照组的NCAPG基因及蛋白表达量。CCK-8法检测各组细胞的增殖能力，观察NCAPG对细胞增殖的影响。为探讨NCAPG对B-CPAP细胞凋亡的影响，利用流式细胞术检测各组细胞Annexin V / PI双染情况，利用Western blot法检测各组细胞的凋亡相关蛋白Caspase-3、Bax和Bcl-2表达。结果:转染siRNA-NCAPG的B-CPAP细胞成功下调NCAPG的基因及蛋白表达。NCAPG表达下降抑制B-CPAP细胞的增殖。流式细胞术结果显示，下调NCAPG表达可诱导B-CPAP细胞凋亡。Western blot结果表明，下调NCAPG表达促进B-CPAP细胞Caspase-3和Bax的表达，抑制Bcl-2的表达。结论:甲状腺癌细胞B-CPAP中NCAPG促进细胞增殖，抑制其表达后可通过调节线粒体通路诱导细胞凋亡。

Abstract: Objective:To investigate the effects and possible mechanisms of NCAPG on thyroid cancer cell proliferation and apoptosis.Methods:The expression of NCAPG in B-CPAP cells was down-regulated by siRNA-NCAPG.The expression of NCAPG gene and protein were detected by qRT-PCR and Western blot respectively.To investigate the effects of NCAPG on cell proliferation,cells in each group was detected by CCK-8.To investigate the effect of NCAPG on apoptosis of B-CPAP cells,Annexin V/PI double staining was detected by flow cytometry,and the expressions of apoptosis-related proteins Caspase-3,Bax and Bcl-2 were detected by Western blot.Results:B-CPAP cells transfected with siRNA-NCAPG successfully reduced the level of NCAPG expression.The decreased expression of NCAPG inhibited the proliferation of B-CPAP cells.The results of flow cytometry showed that down-regulation of NCAPG expression could induce apoptosis of B-CPAP cells.Western blot showed that down-regulation of NCAPG expression promoted the expression of Caspase-3 and Bax in B-CPAP cells and inhibited the expression of Bcl-2.Conclusion:NCAPG induces the proliferation of B-CPAP cells,and inhibits its expression,which can promote cell apoptosis by regulating the mitochondrial pathway.

参考文献/REFERENCES

[1] Nishino M,Krane JF.Updates in thyroid cytology [J] .Surg Pathol Clin,2018,11(3):467-487.
[2] Zhao L,Dias-Santagata D,Sadow PM,et al.Cytological,molecular,and clinical features of noninvasive follicular thyroid neoplasm with papillary-like nuclear features versus invasive forms of follicular variant of papillary thyroid carcinoma [J] .Cancer Cytopathol,2017,125(5):323-331.
[3] Nachalon Y,Hilly O,Segal K,et al.Radiation-induced well-differentiated thyroid cancer:Disease characteristics and survival [J] .Isr Med Assoc J,2016,18(2):90-94.
[4] Samimi H,Fallah P,NaderiSohi A,et al.Precision medicine approach to anaplastic thyroid cancer:Advances in targeted drug therapy based on specific signaling pathways [J] .Acta Med Iran,2017,55(3):200-208.
[5] Ibrahim EY,Busaidy NL.Treatment and surveillance of advanced,metastatic iodine-resistant differentiated thyroid cancer [J] .Curr Opin Oncol,2017,29(2):151-158.

[6] Sutani T,Sakata T,Nakato R,et al.Condensin targets and reduces unwound DNA structuresassociated with transcription in mitotic chromosome condensation [J] .Nat Commun,2015(6):7815.
[7] Cohen Y,Gutwein O,Garach-Jehoshua O,et al.The proliferation arrest of primary tumor cellsout-of-niche is associated with widespread downregulation of mitotic and transcriptional genes [J] .Hematology,2014(19):286-292.
[8] Fagerberg L,Hallstr□m BM,Oksvold P,et al.Analysis of the human tissue specific expression by genome-wide integration of transcriptomics and antibody-based proteomics [J] .Mol Cell Proteomics,2014(13):397-406.
[9] Zhang Q,Su R,Shan C,et al.Non-SMC condensin I complex,subunit G (NCAPG) is a novel mitotic gene required for hepatocellular cancer cell proliferation and migration [J] .Oncol Res,2018,26(2):269-276.
[10] ZHOU Dawei,ZHU Zhengtao,ZHANG Shiyu.Current status and related problems in the treatment of differentiated thyroid carcinoma [J] .Chinese Journal of Clinical Rational Drug Use,2018,1C(11):166-167. [周大为,朱征涛,张士玉.分化性甲状腺癌治疗现状及有关问题研究 [J] .临床合理用药,2018,1C(11):166-167.]
[11] Yan H,Li Z,Shen Q,et al.Aberrant expression of cell cycle and material metabolism related genes contributes to hepatocellular carcinoma occurrence [J] .Pathol Res Pract,2017 (213) :316-321.
[12] Li S,Xuan Y,Gao B,et al.Identification of an eight-gene prognostic signature for lung adenocarcinoma [J] .Cancer Manag Res,2018,10(10):3383-3392.
[13] Zhou L,Du Y,Kong L,et al.Identification of molecular target genes and key pathways in hepatocellular carcinoma by bioinformatics analysis [J] .Onco Targets Ther,2018,4 (11) :1861-1869.
[14] Liang ML,Hsieh TH,Ng KH,et al.Down-regulation of miR-137 and miR-6500-3p promotes cell proliferation in pediatric high-grade gliomas [J] .Oncotarget,2016,7(15):19723-19737.
[15] Arai T,Okato A,Yamada Y,et al.Regulation of NCAPG by miR-99a-3p (passenger strand) inhibits cancer cell aggressiveness and is involved in CRPC [J] .Cancer Med,2018,7(5):1988-2002.

备注/Memo: -

更新日期/Last Update: 2019-11-29