

[1]吴磊,孙建国,徐睿,等.miR-18a对A549细胞的放射增敏作用及其机制[J].第三军医大学学报,2013,35(09):870-873.

Wu Lei,Sun Jianguo,Xu Rui,et al.miR-18a enhancing radiosensitivity of A549 cells and its molecular mechanism[J].J Third Mil Med Univ,2013,35(09):870-873.

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## miR-18a对A549细胞的放射增敏作用及其机制(PDF) 分

《第三军医大学学报》[ISSN:1000-5404/CN:51-1095/R] 卷: 35 期数: 2013年第09期 页码: 870-873 栏目: 论著 出版日期: 2013-05-15

Title: miR-18a enhancing radiosensitivity of A549 cells and its molecular mechanism

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关键词: [肺癌](#); [放射治疗](#); [微小RNA](#); [放射线耐受](#)

Keywords: [lung neoplasms](#); [radiotherapy](#); [miRNAs](#); [radiation tolerance](#)

分类号: R394.6; R730.55; R734.2

文献标志码: A

摘要: **目的** 观察miR-18a对A549肺腺癌细胞放射敏感性的影响。 **方法** qRT-PCR检测2 Gy X线照射A549细胞后miR-18a的变化; 将人工合成的miR-18a模拟物(mimics)转染A549细胞,测定不同剂量照射后A549细胞的克隆形成能力,描记细胞存活曲线,测算2 Gy时存活分数(SF<sub>2</sub>)等指标,判断miR-18a对A549细胞放射敏感性的影响;同时检测过表达miR-18a的A549细胞中共济失调-毛细血管扩张症突变基因(ataxia-telangiectasia mutated, ATM)蛋白,探讨miR-18a对A549细胞放射敏感性影响的分子机制。 **结果** 与照射前(1.00±0.04)相比,2 Gy剂量照射后A549细胞miR-18a水平[(0.18±0.04)~(0.31±0.09)]显著降低(P<0.05)。miR-18a过表达后A549细胞放射敏感性增强,miR-18a过表达组、空白对照组SF<sub>2</sub>分别为0.34,0.48;同时miR-18a过表达的A549细胞中ATM、磷酸化ATM(ATM phospho S1981)水平下降。 **结论** miR-18a上调A549细胞放疗敏感性,可能与miR-18a下调ATM有关。

Abstract: **Objective** To determine the effect of miR-18a on the radiosensitivity of A549 cells and investigate the underlying molecular mechanisms. **Methods** After A549 cells were treated with 2 Gy X-ray, miR-18a was determined by qRT-PCR. And then miR-18a mimics were transfected into A549 cells, after exposure to X-ray radiation at different doses, survival fraction was assessed by clonogenic

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assay. Survival fraction at 2 Gy ( $SF_2$ ) and enhancement fraction (SER) were calculated. The protein levels of ataxia telangiectasia mutated (ATM) kinase and ATM (phospho S1981) were determined by Western blotting after up-regulating miR-18a. Results miR-18a was decreased from  $1.00 \pm 0.04$  to  $0.18 \pm 0.04$  in A549 cells after exposure to 2 Gy X-ray ( $P < 0.05$ ). miR-18a over-expression increased the radiosensitivity in A549 cells. The  $SF_2$  in miR-18a over-expression cells and normal A549 cells was 0.34 and 0.48, respectively. Moreover, the expression levels of ATM and ATM (phospho S1981) were down-regulated in miR-18a over-expressed A549 cells. Conclusion In A549 cells, miR-18a enhances radiosensitivity by inhibiting ATM and ATM (phospho S1981).

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