Genetics and Molecular Research

microRNA 421 induces apoptosis of c-33a cervical cancer cells via down-regulation of Bcl-xL

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Genet. Mol. Res. 15 (4): gmr15048853
Received June 6, 2016
Accepted September 1, 2016
Published November 21, 2016
DOI http://dx.doi.org/10.4238/gmr15048853

ABSTRACT. Cervical cancer is a life-threatening condition. MicroRNAs (miRNAs) can promote or inhibit cell death and proliferation. The present study investigated the effect of miRNA 421 on the growth and apoptosis of cervical cancer cells. miRNA 421 and control miRNA were synthesized and transfected into c-33a cervical cancer cells. A thiazolyl blue tetrazolium bromide assay, caspase-3 activity, and flow cytometry were used to study the effects of miRNA 421 on c-33a cell growth, and apoptosis. Small interfering RNA targeting Bcl-xL was synthesized and transfected into c-33a cells along with miRNA 421. Bcl-xL expression and cell apoptosis were then measured by western blot and flow cytometry, respectively. Transfection of miRNA 421 into c-33a cells reduced their growth, promoted their apoptosis (measured by increased phosphatidylserine eversion), activated caspase-3, and decreased Bcl-

xL expression. Silencing and overexpression of Bcl-xL enhanced and inhibited miRNA 421-induced apoptosis of c-33a cells, respectively. miRNA 421 induces c-33a cell apoptosis via down-regulation of Bcl-xL, suggesting that this latter might be used as a potential clinical target.

Key words: miRNA 421; Bcl-xL; Cervical cancer c-33a cells; Apoptosis