Effect of progranulin (PGRN) on the proliferation and senescence of cervical cancer cells

X.Y. Zhang[1], Z.X. Pan[1], H. Liu[1], J.L. Yu[1], G.X. Li[2], H.Y. Wang[3] and M.M. Liu[4]

[1]Department of Gynecology, Weifang Medical University Affiliated Hospital, Weifang, China
[2]Department of Oncology, Weifang Medical University Affiliated Hospital, Weifang, China
[3]Department of Microbiology, Weifang Medical University, Weifang, China
[4]Obstetrical Department, Weifang People's Hospital, Weifang, China

Corresponding authors: G.X. Li / H.Y. Wang
E-mail: liguixin_gx@163.com / wanghoingyan_l@163.com

Genet. Mol. Res. 14 (4): 14331-14338 (2015)
Received June 10, 2015
Accepted September 13, 2015
Published November 13, 2015
DOI http://dx.doi.org/10.4238/2015.November.13.18

ABSTRACT. We investigated the effect of progranulin (PGRN) expression on the proliferation and senescence of cervical cancer cells. PGRN small interfering RNA (siRNA) was introduced into the SiHa and HeLa cell lines of human cervical carcinoma using liposome-mediated transfection. The expression levels of PGRN in each cell line after transfection of PGRN siRNA were detected by reverse transcription-polymerase chain reaction (RT-PCR). Senescence in the cell lines was detected using the β-galactosidase-staining test, and proliferation was detected by clone formation. The RT-PCR assay showed that the expression of PGRN in all of the cell lines transfected with PGRN siRNA markedly decreased. In the clone-forming test, compared with the control group, the colony-forming ability in all cell lines decreased significantly after transfection with PGRN siRNA. The β-galactosidase-staining experiments showed that the phenomenon of cell aging in the PGRN interference group was more obvious than in the control group. After the cervical cancer cells had been transfected with PGRN siRNA, cell senescence was accelerated and clone-forming ability was markedly reduced. This suggests that PGRN can promote the proliferation of the cervical cancer cell line; proliferation of cervical

cancer cells is achieved by inhibiting their senescence.

Key words: PGRN; Cell senescence; Cell proliferation; Cervical cancer

