MicroRNA-181b expression in prostate cancer tissues and its influence on the biological behavior of the prostate cancer cell line PC-3

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Received June 21, 2012
Accepted September 5, 2012
Published April 2, 2013
DOI http://dx.doi.org/10.4238/2013.April.2.17

ABSTRACT. We examined microRNA-181b (miRNA) expression in prostate cancer tissues and its effect on the prostate cancer cell line PC-3. Tissues from 27 cases of prostate cancer and 30 samples of normal human prostate were collected by surgical removal. Total miRNA was extracted, and the relative expression of miR-181b was quantified using RT-PCR. miR-181b ASO was transfected into prostate cancer PC-3 cells. miR-181b expression in transfected and non-transfected cells was measured using RT-PCR. Changes in cell apoptosis were measured using flow cytometry. MTT and cell growth curve methods were used to assess the influence of miR-181b expression on cell proliferation. The changes in cell invasive ability in vitro were detected using the Transwell chamber method. miR-181b was up-regulated in the prostate cancer tissues compared with the normal prostate samples. It was down-regulated after miR-181b ASO
transfection into the prostate cancer PC-3 cells. Down-regulation of miR-181b in the PC-3 cell induced apoptosis, inhibited proliferation, and depressed invasion of PC-3 cells in vitro. As miR-181b is over-expressed in prostate cancer, its down-regulation could have potential as gene therapy for prostate cancer by inducing apoptosis, inhibiting proliferation and depressing invasion by cancer cells.

**Key words:** miR-181b; Prostate cancer; PC-3; Apoptosis; Proliferation; Invasion