

Abstract

The Foods Containing miR-193b May Inhibit the Growth of Breast Cancer Cells [†]

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Abstract: The plant and animal derived foods contain fats, carbohydrates, proteins and also nucleic acids, such as miRNA. miRNAs are well known the major players in cancer progression as tumor suppressors or oncogenes. Among many miRNAs, miR-193b was investigated the role on cell growth in both of triple-negative and estrogen receptor positive breast cancer cells in this study. For this purpose, cell proliferation was assayed using MTS in MDA-MB-231 and MCF-7 cells treated with 25, 50, 75, 100 nM miR-193b mimic or control miRNA for 72 h. Additionally, colony formation was evaluated by crystal violet dye. Our findings revealed that miR-193b mimic caused to inhibit cell viability as a dose dependent manner in both type of breast cancer cells compare to control condition. Whereas 25 nM dose of miR-193b was not enough to kill, 50 nm led to die 44% and 50% of MCF-7 and MDA-MB-231 cells, respectively. miR-193b mimic concentration above 50 nM, especially 100 nM, resulted in some cytotoxicity after 72 h exposure. These MTS data were also supported by colony formation assay. We strongly believed that the foods containing miR-193b might support to prevent the cell growth of breast cancer cells, even more aggressive type as triple negative.

Keywords: food; miRNA; miR-193b; breast cancer; MCF-7; MDA-MB-231; cell proliferation; cancer prevention

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