

*Abstract*

# Is the Dietary miR-193b a Novel Cell Cycle Arresting Source for Breast Carcinoma? <sup>†</sup>

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**Abstract:** There are many reasons that make the foods carcinogenic because of containing inorganic and organic molecules, such as nucleic acids, miRNA. Given the tumor suppressor or oncogenic effects of miRNAs, the dietary carcinogenic effect depends on the type of miRNA. The dietary miRNAs having tumor suppressor properties should be consumed to provide cancer protection and prevention. In this study, we aimed to show the regulatory role of miR-193b on key mediators related to cell cycle pathway in breast cancer cells. We evaluated both mRNA and protein expressions of Cyclin D1 and CDK4 in MCF-7, an estrogen receptor (ER) positive breast cancer cell, and MDA-MB-231, a triple-negative breast cancer cell. Based on our data, miR-193b caused to inhibit the cell cycle at G1 checkpoint, since the expressions of Cyclin D1 and CDK4 were markedly down-regulated at both the mRNA and protein levels in MCF-7 and MDA-MB-231 breast cancer cells after treatment with a 50 nM concentration for 72 h. These data suggest that miR-193b is a tumor suppressor in both ER positive and triple-negative breast cancer cells because it leads the cell cycle arrest at G1 checkpoint. The miR-193b rich foods might help to protect and prevent us from breast cancer.

**Keywords:** food; miRNA; miR-193b; breast cancer; MCF-7; MDA-MB-231; cell cycle; Cyclin D1; CDK4; cancer prevention

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