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ORIGINAL ARTICLE

Quercetin Mediated TET1 Expression Through MicroRNA-17 Induced Cell Apoptosis in Melanoma Cells

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Abstract

A previous report suggested that the expression of ten-eleven translocation (TET) proteins is abnormal in certain cancers. Quercetin has been demonstrated as anti-cancer role in cancer development. In order to explore the inhibitory effect and mechanism of quercetin on uveal melanoma cells, the expression of TET proteins was analyzed in the present study. Our results suggest that the expression of TET1 was increased following treatment with quercetin in OCM-1, SK-MEL-1, and B16 cells. In addition, quercetin treatment induced apoptosis and inhibited migration and invasion. To further investigate the association of the expression of TET1 with cell growth, apoptosis, migration, and invasion, cell lines in which TET1 was knocked-down or overexpressed were constructed. The results showed that the increased expression of TET1-induced apoptosis, increased 5-hydroxymethylcytosine (5 hmC). and inhibited invasion. Our bioinformatics studies indicated that TET1 is a target gene of microRNA-17 (miR-17) Our results showed that inhibition of the expression of miR-17 resulted in increased TET1 expression in OCM-1 cells. Furthermore, our results indicated that quercetin treatment increased TET1 expression and inhibited melanoma growth in nude mice. Taken together, our results suggest that quercetin can regulate cell proliferation and apoptosis through TET1 via miR-17 in melanoma cells.

Keywords TET1 · miR-17 · Cell apoptosis · Cell growth · Quercetin

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