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**8-Hydroxydaidzein suppresses breast cancer stem-like cells to cease breast cancer progression**

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**Abstract**

Cancer stem cells (CSCs) have a key role in different stages of cancer development and therapy resistance. 8-Hydroxydaidzein (8-OHD) is known as anti-cancer agent against many tumors. Accordingly, The aim of this study is to evaluate the effects of 8-OHD on the suppression of breast cancer stem-like cells (BCSCs). Methods: The anti-proliferative and pro-apoptotic properties of 8-OHD were examined by MTS assay and flowcytometry. The expression levels of stemness markers and JAK2/STAT proteins were measured by quantitative real time-PCR (qRT-PCR) and western blotting, respectively. Results: 8-OHD significantly decreased three out of six stemness markers and remarkably reduced viability and induced apoptosis of spheroidal and parental cells compared to controls. Further experiments using CD95L, as a death ligand, and ZB4 antibody, as an extrinsic apoptotic pathway blocker, showed that 8-OHD induced apoptosis through the intrinsic pathway, proposing a mechanism by which 8-OHD triggers apoptosis. Results of western blot analysis also revealed a marked decline in the phosphorylation of JAK2 and STAT proteins. Conclusion: Our data unraveled anti-BCSC activity of 8-OHD by reducing stemness markers, inducing toxicity and triggering apoptosis of these cells and parental cells. Our results also proposed a novel mechanism by which 8-OHD stimulated apoptosis of BCSCs

**Biography**

Sadegh Rajabi has completed his PhD at the age of 35 years from Shahid Beheshti University of Medical Sciences, Tehran, Iran. He is the director of Traditional Medicine Research center at Shahid Beheshti University of Medical Sciences. He has published more than 25 papers in reputed journals and has been serving as a reviewer many of reputed journals.

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