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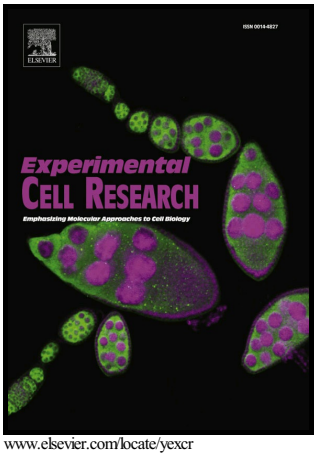

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PII: S0014-4827(18)30374-4
DOI: https://doi.org/10.1016/j.yexcr.2018.06.031
Reference: YEXCR11095

To appear in: *Experimental Cell Research*

Received date: 25 January 2018
Revised date: 26 June 2018
Accepted date: 27 June 2018

Cite this article as: Shuhua Ji, Zhaodi Zheng, Shan Liu, Guanghui Ren, Junying Gao, Yang Zhang and Guorong Li, Resveratrol promotes oxidative stress to drive DLC1 mediated cellular senescence in cancer cells, *Experimental Cell Research,* https://doi.org/10.1016/j.yexcr.2018.06.031

Resveratrol promotes oxidative stress to drive DLC1 mediated cellular senescence in cancer cells

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Abstract

Induction of cellular senescence represents a novel strategy to inhibit aberrant proliferation of cancer cells. Resveratrol is gaining attention for its cancer preventive and suppressive properties. Tumor suppressor gene DLC1 is shown to induce apoptosis, suppress migration and invasion in various cancer cells. However, the function of DLC1 in cancer cellular senescence is unclear. This study was designed to investigate the biological role of DLC1 in resveratrol induced cancer cellular senescence. Our results showed that resveratrol inhibited proliferation of cancer cell lines (MCF-7, MDA-MB-231 and H1299) and induced senescence along with increase of SA-β-gal activity and regulation of senescence-associated molecular markers p38MAPK, p27, p21, Rb and p-Rb protein. The underlying mechanism was that resveratrol induced mitochondrial dysfunction with reduction of mitochondrial membrane potential, down-regulation of MT-ND1, MT-ND6 and ATPase8 in transcript level