Reviewer's report

Title: The prosurvival role of autophagy in Resveratrol-induced cytotoxicity in human U251 glioma cells

Version: 1 Date: 23 February 2009

Reviewer: Michael Berens

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Summary

Jun et al report the pro-cytotoxic (classical apoptosis) effects of resveratrol against human glioma U251 cells. Morphological assays of nuclei, mitochondrial membrane potential measurements, sub-G0/G1 DNA content, and autophagic vesicle formation data implicated a autophagy as a protective reaction of cells to resveratrol. Inhibitors of autophagy potentiated the cytotoxic effects of resveratrol.

Critique

Better understanding of the mechanism of the cytotoxic effects of resveratrol may improve the enrollment of patients for such treatment. Additionally, these basic descriptions of such anti-cancer effects of resveratrol may better guide the use of this agent as a cancer-preventive strategy.

The use of a solitary glioma cell line is a weakness of the present contribution.

The methods of analysis for cell survival, for cell death, and for mechanisms of autophagy and apoptosis are sufficient for the findings presented. However, the cellular responses of autophagy and apoptosis, along with the mechanistic determinants that indicate each of these cascades, warrant more careful alignment to support the inter-relatedness of autophagy with eventual apoptotic cell death. Specifically, the manuscript alludes to the early and late mitochondrial changes and the formation of autophagic vesicles and organelle preservation in the context of blebbed-nuclei as well as the development of sub-G0/G1 ploidy cells; these measurements all warrant some integration among the various assays reported.

The report would be strengthened by including appropriate control measurements for Figures 1A and 3B. In Figure 5B, it is unclear whether the Beclin-1 values were normalized by densitometry of the beta-actin loading controls. The legend for Figure 5 neglects to indicate what the ** represents.

The manuscript has inconsistencies in the use of acronyms or abbreviations of the different chemicals used and processes under study.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'