Reviewer’s report

Title: Resveratrol protects leukemic cells against cytotoxicity induced by proteasome inhibitors via induction of FOXO1 and p27Kip1

Version: 1 Date: 3 November 2010

Reviewer: Andreas Gescher

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This manuscript describes results which add to the long list of wanted or unwanted pharmacological properties of the putative cancer chemopreventive agent resveratrol. The results are quite interesting, the methods seem well controlled, and the manuscript is on the whole well written. But there are flaws.

Major compulsory revisions:

1. Intro - The authors do not give a robust hypothesis which was tested here and which would rationalize why the work was carried out in the first place. Why was resveratrol combined with MG at all? Was it a serendipitous observation?

2. Agent concentrations - MG132: the conc of 5 microM used needs robust justification. Can this value be achieved in the human (or animal) plasma?

Resveratrol: The effect of resveratrol commences at 2microM and is optimal at 10-20microM. The authors need to place this observation in the appropriate context of the concentration of resveratrol achievable in the human biophase. In a recent clinical trial of reveratrol heroic doses of 2.5 to 5g gave peak plasma levels of just 3-4 microM. This finding suggests that more reasonable doses (up to 1g) of resveratrol furnish levels which are clearly insufficient to adversely affect proteasome inhibitor action. This issue needs to be discussed because it ameliorates the potential clinical impact of the findings.

Minor essential revisions:

3. Fig legends: How many independent experiments and repeats within experiments were performed?

4. The sentence in the intro that "resvera...is highly enriched in a variety of food sources, such as grapes, peanuts and red wine...." is incorrect. What does "highly enriched" mean? State correct content and translate into human intake which of course is minute.

5. The discussion needs focussing on the issues in hand.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.

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