Reviewer's report

Title: Protective effect of genistein on radiation-induced intestinal injury in tumor bearing mice

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Reviewer: Regina Day

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TG Son et al. in the manuscript "Protective effect of genistein on radiation-induced intestinal injury in tumor bearing mice" explore the effects of genistein on radiation-induced damage on normal gastrointestinal tissue and on tumors of the GI in mice.

Comments for minor revisions:

1) Please indicate the location(s) of tumors in mice--are they all localized to the site of injection?

2) In the Methods, please indicate the numbers of mice that were used to evaluate tumor sizes after irradiation (mice not euthanized to evaluate intestinal cell apoptosis). Also, throughout the manuscript, please substitute the word "euthanized" for 'sacrificed'.

3) In the Methods, please provide the location of genistein injections.

4) In the last section of the Results (Effect of genistein on sensitivity to radiation in CT26 cell xenografted mice), please provide the numbers of mice from which tumors were taken (in each treatment group).

5) In the Discussion, the authors state that genistein has "strong" antioxidant properties, however the use of genistein 24 h prior to irradiation suggests that genistein is having a biological effect rather than an antioxidant effect. The authors should check to ensure that genistein is a "strong" antioxidant (compared to many other radioprotective compounds, genistein is actually a weak antioxidant). The authors should consider the possibility that genistein (injected 24 h prior to irradiation) is not likely present in significant levels in the tissues at the time of radiation. Many other radiation protective agents that do act via antioxidant properties (e.g. Tempol) must be administered immediately prior to radiation exposure. In their previous study of the testis, what was the time of administration and the time of irradiation prior to measurement of oxidative radicals? The authors cite the regulation of GCSF by genistein. Have the authors measured GCSF in their system in response to genistein? Finally, the authors should mention cell cycle regulation and gene regulation activities (especially DNA repair genes) by genistein. These activities have been confirmed in multiple publications.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

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.