Reviewer's report

Title: Astragalus polysaccharides inhibit P-glycoprotein efflux pump function and decrease its protein expression in H22 hepatoma cells in vitro

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Reviewer: BS Dwarakanath

Reviewer's report:

General comments

This work reports the chemosensitizing effects of Astragalus poly saccharides (APS) in H22 hepatoma cells in vitro. Clearly the extent of decrease in IC50 values for six commonly used anticancer drugs are in line with the decrease Pgp level and increase in the retention of Rh123 suggestive of a decrease in the functioning of drug efflux. It is useful information in the area of cancer biology and experimental oncology, which may find application in cancer chemotherapy. However, the authors fail to bring in any impact of the findings of the study as the discussion is rather poor and to a large extent repetition of the results.

Compulsory revision required

1 “How does the sensitization of tumor cells to anti-cancer drugs by APS influence the design of chemotherapy using a combination of APS and anti-cancer drugs?” This aspect need to be necessarily included in the discussion.

2 Lack of correlation between time dependent changes in the MDR1 mRNA levels (Fig. 4) and corresponding Pgp levels (Fig. 3) needs explanation

Compulsory editing required

The manuscript needs to be thoroughly edited for grammar and syntax errors, which are innumerable. While at places, it does not convey the information properly; at certain other places it does not make any sense at all.

Compulsory editing required in the figures and tables

1. The figure legends need thorough editing. For example the legend of figure 1 reads “Fluorescence intensity in H22/ADM cells deals with different concentrations of APS at 24 h (A), 48 h (B), 72 h (C)”. What fluorescence

2. Title of Fig 3 (PGP cumulative optical density???) appears very funny and needs to be corrected.

Discretionary revisions

3. Table I is unwarranted.

4. Information in Table 5 is a repetition of figure 4 (mRNA levels)
Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I have no conflict of interest to disclose