Reviewer's report

Title: Berberine enhances inhibition of glioma tumor cell migration and invasiveness mediated by arsenic trioxide via the inactivation of protein kinase C

Version: Date: 24 March 2007

Reviewer: Yok Lam Kwong

Reviewer's report:

General

General comments

It is unclear in this manuscript whether Lin et al intended to study berberine or arsenic trioxide as the main therapeutic agent. Lin et al had not determined the molecular mediators of arsenic trioxide in this cellular model. Furthermore, the molecular action of berberine has also not been determined. There are also major methodological problems with the study.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Major comments

1. It will be useful for Lin et al to specify which was the active agent being investigated. Was it berberine or arsenic trioxide?
2. Please explain why PKC was inhibited. In practically all studies to date, arsenic trioxide appears to activate PKC rather than inhibit it.
3. All the stated results need to be evaluated by appropriate statistical methods.
4. The quality of the figures has to be improved.
5. Additive effects of berberine and arsenic trioxide are less interesting than synergistic. What are the therapeutic potentials of both agents in glioma?
6. In figure 1C, the appropriate control should be treatment with 5um arsenic trioxide, and not dimethyl sulfoxide.
7. In figure 2A, please also show the group treated with 10um berberine.
8. It is apparent from the results that most of the inhibitory effects of the combined berberine and arsenic trioxide treatment were contributed by berberine. If that is the case, a better approach is to use increasing concentrations of berberine, rather than to combine it with arsenic trioxide.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Reject because scientifically unsound

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:

I declare that I have no competing interests