Reviewer's report

Title: Antimalarial activity of plumbagin in the in vitro and animal models

Version: 1 Date: 8 October 2013

Reviewer: Sittiporn Pattaradilokrat

Reviewer's report:

Major compulsory revisions:

1. In Materials and Methods, the authors stated the plumbagin treatments were performed at high doses (e.g. 100, 200 and 500 mg/Kg). However, in Results section, the authors only reported that results from treatment with 100 mg/Kg plumbagin by which plumbagin exerted no toxic effect to animals' health. For some reasons, no description of toxicity or effect on animals' health at high doses was reported. This hidden part of study is the "real" toxicity test.

2. In Result section (line 177-178 and line 182-184), the authors reported results of gross examination (size of organ) and cell morphology. But, clear methods were not described anywhere in the text. Detailed methods for behavioral observations were described, neither.

3. Conclusions (line 40-42) and (line 241 – 244) looked totally different. It seems that the authors concluded results from two pieces of independent work.

4. Drug concentrations in the in vitro experiment should be converted to uM or nM; to facilitate comparison of the drug activities to other published work.

Minor essential revisions:

1. There are numerous grammatically incorrect English usages. See below, for some example.

Line 48-49:
“Malaria caused by Plasmodium falciparum is the most virulent….species” should be
“Malaria is caused by Plasmodium falciparum, one of the most virulent and most widespread malaria parasite species....”

Line 63-64: this is not a sentence.

Line 80: “The authentic” should be removed.

Line 103:
“The 96-well drug plate was dosed with plumbagin at eight final concentrations” should be
“Plumbagin (in PBS/DMSO/Tween-20?) was added to the malaria parasite
culture at 8 concentrations of 0.039, ...”

2. In Discussion, the authors proposed the use of lipid-soluble solvent to prepare plumbagin. I would recommend the authors’ to repeat the in vivo assays with DMSO or other solvents. It may improve the efficacy of the test compounds.

3. There are other examples of relevant work that conducted similar in vitro and in vivo assays, which should be of interest to the authors. See, Yuan et al., 2011 Science. http://www.ncbi.nlm.nih.gov/pubmed/21817045, for example.

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

**Declaration of competing interests:**

I hereby have declared that no competing interests exist.