Reviewer's report

Title: Bayesian designs of phase II oncology trials to select maximum effective dose assuming monotonic dose-response relationship

Version: 2 Date: 30 March 2014

Reviewer: Maiying Kong

Reviewer's report:

The authors propose two new Bayesian designs to identify the maximum effective dose with the assumption of monotonicity on the dose-response relationship. The authors conduct simulation studies to evaluate the operating characteristics of the proposed designs, and compare them with Simon two-stage designs. The authors conclude that the performance of the proposed design based on Bayesian hypothesis test and non-local alternative priors is more robust than other designs. The current work is very interesting and important in this area, and it will benefit its readers. However, I would like the authors to address the following comments:

1. The background has 5 pages, I hope the authors could shorten the background section without sacrificing the clarity. Note that the abbreviation should be stated first before using it. For example, the “DLTs” on the third line from the bottom on page 2 was not defined before using it first time although it was defined as “dose-limiting toxicities” later on page 3. The parentheses on the lines 16-17 on page 4 may not be needed. You may want to explain “the non-local alternative prior densities” versus “the local alternative prior densities” so that the readers can distinguish the two and know the advantages using the non-local alternative prior densities (see page 4 the first paragraph).

2. In the method section, please make comments on how you set the threshold values for Pa and Pb (see lines 3 and 5 on page 8). Please specify #* on the last line on page 9.

3. In the result section, you may want to add a subsection title for the simulations presented on pages 11-16, and change “3.1” to “3.2” on page 17. I am wondering whether you may remove Tables 2, 3, 5, and 6, but state your finds in the context.

4. In the discussion section, please make some comments on how one may obtain the estimation for the maximum sample size if the sample size needs to be estimated.

In summary, I would like to see a revised version with the above comments addressed.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable
**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests