Reviewer's report

**Title:** Characterization and drug sensitivity profiling of primary malignant mesothelioma cells from pleural effusions

**Version:** 3  
**Date:** 5 June 2014

**Reviewer:** Leticia G G Leon

**Reviewer's report:**

Comments

This article is a pharmacological approach trying to decipher the importance of new ex vivo test to advance diagnosis in Mesothelioma patients and it describes more accurate biomarkers to improve both the response and survival time for the patients. While the subject is quite relevant in mesothelioma treatment a number of issues should be addressed or clarified, including additional experimental work, in order to ameliorate the relevance of the study.

**Major comments**

1.- Since pemetrexed is the first line of treatment, it will be worthy that the authors should test the pemetrexed in all samples, but not only in the 50% of them. I have the same request for cisplatin and carboplatin.

2.- Since the methodology that authors used to measure the citotoxicity effects is not the most common reproducible one, I would like to see some GI50 data for the drugs activity to allow a comparison with other pharmacological studies in mesothelioma using pemetrexed. In addition, some dose/response curves could help to understand the efficacy of the drugs described.

3.- It is not easy to understand the mathematical basis in which the calculation for the cytotoxicity is based and even less for the adjusted drug efficacy. The authors must make an effort to elaborate a better explanation for that, in despite of the fact that they have published previously data with the same methodology. Is it the software used and developed for the authors open source? Has this software been used or validated in another laboratory?

4.- In the statistical analysis, the correlations described for the data are not strong enough, all R2 are below 0.7 that is probably due to the short number of samples used in the study. I strongly suggest to increase the number of samples to make the statistic analysis robust enough.

**Minor comments**

1.- The authors must be more specific and clear concerning the first concentration (1x) used for all the drugs described in Table 3. In the actual draft they point directly to this concentration both in methods and results without any
further explanation.

2.- The authors describe the dilutions as (1x, 5x, 25x and 125x) but normally this terminology is employed as increasing concentrations (not dilutions) of a solution. Moreover, could the authors describe thoroughly why they consider these specific dilutions for drugs?

**Level of interest:** An article of limited interest

**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