Reviewer's report

Title: Altered human breast cancer cell features and increased chemosensitivity mediated by adipose-tissue derived mesenchymal stromal cells

Version: 1 Date: 24 July 2013

Reviewer: Lynne Elmore

Reviewer's report:

Major Compulsory Revisions:
-the following data sets are in need of attention:

Figure 1C only 3 of the target genes have been statistically considered. All genes should be similarly analyzed with data being presented; it is unclear why a gel is shown when real-time RT-PCR is being conducted for another aspect of the study;

Figure 1D-besides representative images, quantitative data should also be included either in the figure of text of results;

Figure 1E- statistics need to be included for this data set;

Figure 2 A & B require statistics, and it is unclear why a gel is shown when real time RT-PCR has been performed for other aspects of the study.

Figure 3A should display the collective data set rather than just 1 result (or, at a minimum, 3 representative results to permit statistics);

Minor Essential Revisions:
-There needs to be a better description of the various inhibitors as well as the concentrations tested in the text;

-Concentrations of the various chemotherapeutic agents need to be included in the text;

-Many of the figures are lacking critical details (i.e., axis labels are missing, asterisks are included in one figure with no mention of the meaning, many of the graphs and/or legends are missing p-values, asterisks, etc.)

-were any positive controls included for the mouse studies (i.e., your MSCs contributing to the progression of MDA-MB231, as reported previously). If not, you cannot be certain whether there wasn't a technical problem with the MSCs.

Discretionary Revisions:

-In light of the negative in vivo data, perhaps mention of future studies are needed to test in vivo whether MSCs alter chemosensitivity in vivo (demonstrating this would make for a much more impactful study);

-Mention that adipose MSC are derived from the abdomen and not breast tissue; perhaps include in the discussion some comments and literature citations as to whether the source of adipose MSCs matters when considering mammary
cancer progression.

- The discussion is very long and reads more like a review; the manuscript would be strengthened if this section was more focused on how the data presented contributes to the field.

- Similarly, the introduction quite extensively cites published literature but as a listing of 1-sentence descriptions of each. An integration of this literature leading up to the hypothesis and goals of this study would strengthen the paper.

**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.