Reviewer’s report

Title: Anti-HER2 IgY antibody-functionalized single-walled carbon nanotubes for detection and selective destruction of breast cancer cells

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Reviewer: Kasif Teker

Reviewer’s report:

This paper presents detection and destruction of SK-BR-3 cells through anti-Her2 IgY-SWNT complexes. The results are very encouraging and interesting, however it needs more work.

Major points:

1. More discussions are needed regarding detection mechanism via Raman to make the paper scientifically sound (Page 11). Figures 2 and 3 should be explained in more details. Figure 2b should be mentioned in the manuscript.
2. Elaboration of the last paragraph in “Results and Discussion” section is required.
3. What is your evidence for single cell detection ability?

Minor points:

1. Elaborate the advantages of using anti-Her2 IgY antibody.
2. What is the SWNT concentration used (4 or 40 µg/mL)?
3. What are the criteria for optimum heating condition to be 5 min (page 8 middle paragraph)?
4. Magnifications for Figure 4?
5. How did you achieve very good separation of SWNTs?
6. In figure 4B and 4D, one would expect some more cell destruction. Can you comment on that one? Do you have the same SWNT concentrations for 4 B, D, and F?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.