Reviewer's report

Title: The Potential Biomarkers in Predicting Pathologic Response of Breast Cancer to Three Different Chemotherapy Regimens

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Reviewer: YUVAL SHAKED

Reviewer's report:

The study by Wang et.al., demonstrates several potential biomarkers which may predict pathologic response in breast cancer patients treated with various chemotherapy drug regimens. The authors evaluated 118 breast cancer patients that were treated with DEC, VFC or EFC treatment regimens prior surgery, and factors expressed in tumor biopsies were assessed, including, ER, HER2, PgR, Topo-II, P-gp, MRP and GST-pi. The authors found a striking correlation between the expression of ER and the decrease in pathologic response prior surgery in tumor biopsies of all treatment groups. Moreover, HER2 expression correlated with pathologic response only in the DEC regimen but not other regimens. No significant correlation was found between all other factors evaluated and the pathological response. The authors concluded that ER is an independent predictive factor for pathologic response in breast cancer patients treated with different chemotherapy regimens prior operation, whereas HER2 is a predictive biomarker only in the case where patients were treated with DEC. The data can provide further information on the potential correlation between predictive biomarkers and pathologic response to chemotherapy in breast cancer patients before they undergo surgery.

This is an interesting study, but yet preliminary. The overall results are well described; however, there are some points that need further clarifications and elaboration prior publication.

Critique:

1. To the best of my knowledge, the regimen of vinorelbine/vincristine and 5FU is not widely used in breast cancer patients, thus the results are somehow not informative with respect to the current clinical practice.

2. In the discussion section, the authors should elaborate on the point that the results they obtained were conducted by one laboratory, and not a multi central study. In this regard, the variability between laboratories in the assessment of protein expression by using immunehistochemical techniques is very high, and thus standard methods should be considered in future randomized studies.

3. Proteins expressions in tumor biopsies were evaluated before and after chemotherapy treatment, but information on the exact time point of the tumor biopsy is missing. How long after chemotherapy biopsies were taken. This is an important point especially due to the process of tumor cell repopulation usually observed between successive MTD drug treatments. Can the authors provide
further details on the time course of the experiment?

4. Pre-op chemotherapy treatment in breast cancer patients mostly widely in use, paclitaxel and/or doxorubicin. It would be more beneficial if regimens including paclitaxel and doxorubicin (not only docetaxel and epirubicin) were evaluated in this study.

**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, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests’