**Reviewer’s report**

**Title:** Association between gene expression profile of the primary tumor and chemotherapy response of metastatic breast cancer.

**Version:** 0  **Date:** 26 Jun 2017

**Reviewer:** Maria Grazia Daidone

**Reviewer's report:**

This is an interesting paper in which the Authors correlated the gene expression profile of a substantial series of primary breast cancers with the response to systemic chemotherapy of the same patients when they developed metastatic lesions. Actually, the Authors identified a set of 14 genes associated with patient response to treatment, but they were unable to validate the predictive signature. Some factors responsible for the missing confirmation have been mentioned in the discussion and conclusion paragraphs, and it is reasonable to hypothesize that the eventual change in the transcriptomic profile from the primary to the metastatic lesions, due to disease progression and to clonal selection induced by previous treatments, could also account for such a result.

Although experimentally and analytically correct, the paper - in its present form - does not add any new information to the knowledge of potentials and pitfalls of signatures developed on primary lesions and associated to metastatic disease.

Some more information could be added to improve the informativeness of the paper, and specifically:

1. What is the fraction of the 118 investigated cases compared to the one collected in the years 1984-2000?

2. There was any relation between the predictivity of the transcriptomic profile and the type of metastatic lesion(s)?

3. There was any relation between the predictivity of the transcriptomic profile and the time to the occurrence of metastasis?

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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