Reviewer's report

Title: Identification of gene fusion transcripts by transcriptome sequencing in BRCA1-related breast cancers and cell lines

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Reviewer: Hatice Gulcin Ozer

Reviewer's report:

This article studies gene fusion transcripts in BRCA1-related breast cancers and cell lines. Authors performed 11 RNA-seq experiments and adapted an existing bioinformatics approach to identify putative gene fusions. They identified 3 novel non-recurrent gene fusions and confirmed 2 of them by Sanger sequencing. They also confirmed 2 previously characterized gene fusions.

Bioinformatics methods and tools are appropriate and well described. Coverage at the junction of fusion transcripts is low, but validation with Sanger sequencing make the data sound. Discussion and conclusion is supported by the data and literature. Title and abstract clearly convey findings of the study.

Major Compulsory Revisions:
Availability and deposition of the RNA-seq data should be discussed.

Discretionary Revisions:
Authors talk about 57 breast cancer samples in 3rd paragraph of "Discovery of gene fusions" and 3rd paragraph of "Discussion", but there is no reference for this dataset.

In 3rd paragraph of “Discovery of gene fusions” talks about HCC3153 being re-sequenced by Jorge Reis-Filho (who is an author). Is this experiment included in 4 lanes of Illumina sequencing summarized in additional file 1? If so, why authors mentioned this experiment separately? If not, authors should explain this experiment as well.

In 5th paragraph of “Discovery of gene fusions” visual inspection of mutations with IGV does not sound good.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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

Declaration of competing interests:
I declare that I have no competing interests.