Reviewer’s report

Title: Identification of influential observations in high-dimensional cancer survival data through the rank product test

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Reviewer: Jia Zhou

Reviewer’s report:

In the manuscript 'Identification of influential observations in high-dimensional cancer survival data through the rank product test', Carrasquinha et al propose the application of the Rank Product test as a consensus method to prioritize outlying observations reported by different sub-models in survival analysis. This is an interesting report, however, below points need to be addressed.

Comments:

1. For the datasets where the Cox regression model is applied, are the data normally distributed? Regression models, including the Cox model, generally generate more reliable results with normally distributed data. The authors should provide information on the data distribution.

2. Neither of the two outliers (39 and 350) from the 63-gene sub-model is on the final outlier list defined by the RP method. Also, in Table3, it looks the ranks reported by the other two sub-models (18 genes and 22 genes) are more similar (e.g., the observation that ranks high in one of the two sub-models is also in the high-rank bucket in the other sub-model), but are quite different from the rank reported by the 63-gene sub-model. Please elaborate a bit more on the rationale for choosing each of these sub-models, and why different sub-models might generate contradictory results.

3. The RP method proposed in this work combines the results from all sub-models considered. However, with the fact that, some sub-models generate similar results (ranks), while other sub-models can result in very different ranks, it is unclear to the reviewer whether some of the sub-models might indeed create noises that may undermine the RP results, and to what extent this influences the results. The authors should clarify that and discuss the limitations of the proposed strategy.

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