Reviewer’s report

Title: Genomic profiles and transcriptomic microenvironments in 2 patients with synchronous lung adenocarcinoma and lung squamous cell carcinoma: a case report

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Reviewer: Jing Tang

Reviewer's report:

This study performed by Wu et al. showed genomic and transcriptomic profiles of all lung tumors from 2 multifocal lung cancers (MLCs) patients. With the same genetic background, the 2 tumors in one patient exhibited different tumor microenvironment. These results shed on new lights in genomic and transcriptomic features of synchronous lung adenocarcinoma and lung squamous cell carcinoma. Overall, the manuscript is well organized and its presentation is good. However, there are some minor issues need to be amended.

1. Since all 4 samples exhibited high fraction of mutated genes in RTK-RAS pathway, activation of this pathway should also be detected in the level of proteins by IHC or other method in situ in samples.

2. To better understand the TME in MLCs, the in situ tumor-infiltrating immune cell (such as CD4+, CD8+ T cells, etc.) should be explored.

3. The sample name in Fig.4A and 4D should be P1S rather than P2S according to the figure legend.

4. English proofreading is recommended. There are some grammatical mistakes and typing errors.

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 recommend additional statistical review

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

Needs some language corrections before being published

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