

### Author response to Editor:

Dear Editor,

First, on behalf of all my co-authors, I would like to thank you and the reviewers for your valuable time and efforts in reviewing our manuscript. Further, we affirm that the changes suggested by the reviewers were carefully considered, and corrections have been made (highlighted in YELLOW in the revised version) as per the directions. A detailed list of the reviewer's comments and author responses is attached as follows;

#### Reviewer #1:

**Scientific Quality:** Grade A (Excellent)

**Language Quality:** Grade C (A great deal of language polishing)

**Conclusion:** Accept (High priority)

**Specific Comments to Authors:** In brief: AURKA, CCNB1, CDC25C, CDK1, TRIP13, PES1, MCM3, PPM1G, NEK2, KIF2C, PTTG1, KPNA2, and PRC1 were identified as candidate HCC antigens for mRNA vaccine development. Four immune subtypes (IS1-IS4) and five immune gene modules of HCC were identified that were consistent in both patient cohorts. The immune subtypes showed distinct cellular and clinical characteristics. IS1 and IS3 immune subtype showed immunologic "cold" and IS2 and IS4 immune subtype showed immunologic "hot" with up-regulation of immune checkpoints genes and immuno-genic cell death genes. IS1-related modules were identified by the WGCNA algorithm. Ultimately, Five hub genes (RBP4, KNG1, METTL7A, F12, and ABAT) were identified, which might be potential biomarkers for mRNA vaccines. The manuscript is very exciting however, I have some reservation regarding the format of the manuscript.

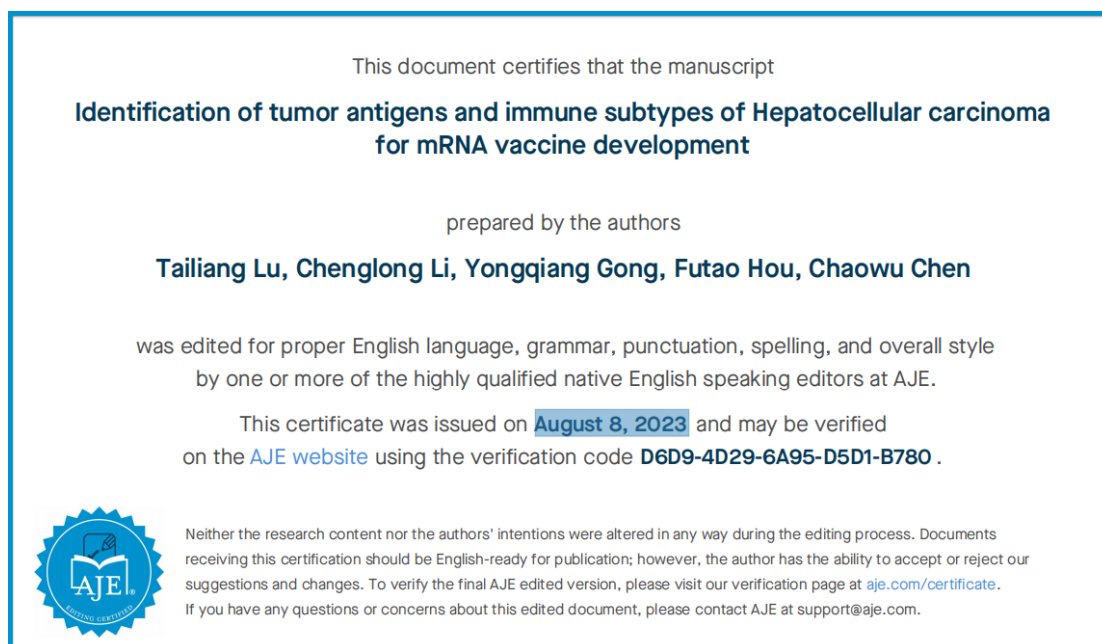
**Author response to reviewer 1:** On behalf of all my co-authors, I would like to express our sincere thanks for your valuable comments and suggestions during the review. We believe the changes you recommended will help improve the quality of our work. A detailed list of author responses to the reviewer's comments is appended below.

1. Please include the workflow in to the main text rather than the supplementary material. It makes the manuscript hard to understand otherwise.

**Author response 1:** We appreciate your advice. We are sorry the difficulty in understanding the manuscript due to the improper placement of the workflow. However, the workflow has been included in the main text as figure1.

2. Major revision of the english language is required

**Author response 2:**After revising the article according to the opinions of editors and reviewers, we resubmitted it to AJE on August 8, 2023 to help polish it, so as to improve the language quality of our article.



Reviewer #2:

**Scientific Quality:** Grade A (Excellent)

**Language Quality:** Grade A (Priority publishing)

**Conclusion:** Accept (High priority)

**Specific Comments to Authors:** This manuscript does an excellent job demonstrating significant tumor antigen and immune cells for mRNA vaccine.

**Author response to reviewer 2:** We thank the respected reviewer for appreciating this work.

Authors must revise the manuscript according to the Editorial Office's comments and suggestions, which are listed below:

(1) Science editor:

The manuscript has been peer-reviewed, and it's ready for the first decision.

(2) Company editor-in-chief:

I recommend the manuscript to be published in the World Journal of Gastrointestinal Oncology. Before final acceptance, when revising the manuscript, the author must supplement and improve the highlights of the latest cutting-edge research results, thereby further improving the content of the manuscript. To this end, authors are advised to apply a new tool, the Reference Citation Analysis (RCA). RCA is an artificial intelligence

technology-based open multidisciplinary citation analysis database. In it, upon obtaining search results from the keywords entered by the author, "Impact Index Per Article" under "Ranked by" should be selected to find the latest highlight articles, which can then be used to further improve an article under preparation/peer-review/revision. Please visit our RCA database for more information at: <https://www.referencecitationanalysis.com/>.

**Author response to EDITORIAL OFFICE'S COMMENTS:** On behalf of all my co-authors, I would like to express our sincere thanks for your valuable comments and suggestions. We searched the high impact index articles on mRNA vaccines using the Reference Citation Analysis System (RCA) and updated the introduction section of the article (paragraph 3).