

### **Reviewer 1:**

1. please elaborate the method part (statistical analysis you had conducted).

**Response:** We thank the reviewer for the suggestion. Following the suggestion, we have elaborated the statistical analysis section in Methods.

### **Reviewer 2:**

1. This study aimed to determine the immunological aspect of hepatocellular carcinoma (HCC) in the background of viral hepatitis B (HBV). Unsupervised machine learning has been performed to identify immune-specific subtypes in transcriptomic data. Besides, clinical and molecular features of these subtypes have been compared to provide new insights into tumor immunity and its association with clinical and molecular findings that will be useful in managing these aggressive tumors. The results have demonstrated that such tumors could be classified into two immune-specific subtypes and have significantly different immunity, stromal contents, tumor purity, stemness, ITH, CNAs, methylation profiles, and survival prognosis. It is concluded that the immune-specific subtyping of HBV+ HCC may provide new biological insights for managing these tumors. is disease This study aimed to determine the immunological aspect of hepatocellular carcinoma (HCC) in the background of viral hepatitis B (HBV). Unsupervised machine learning has been performed to identify immune-specific subtypes in transcriptomic data. Besides, clinical and molecular features of these subtypes have been compared to provide new insights into tumor immunity and its association with clinical and molecular findings that will be useful in managing these aggressive tumors. New insights offered by this study are: These tumors could be classified into two immune-specific subtypes and have significantly different immunity, stromal contents, tumor purity, stemness, ITH, CNAs, methylation profiles, and survival prognosis. The immune-specific subtyping of HBV+ HCC may provide new biological insights for managing these tumors. The limitations of the study: The discussion is too short and should be ameliorated—especially the

data about cancer and Alzheimer's disease. The authors should inform the readers about the significance of these exciting results. For instance, which specific therapy can be performed in HCC-HBV patients depending on the subtypes? The authors should prepare their manuscript according to the Guidelines of the WJG.

Response: We thank the reviewer for the excellent comments. Following the comments, we have discussed the significance of our results in the Discussion section.