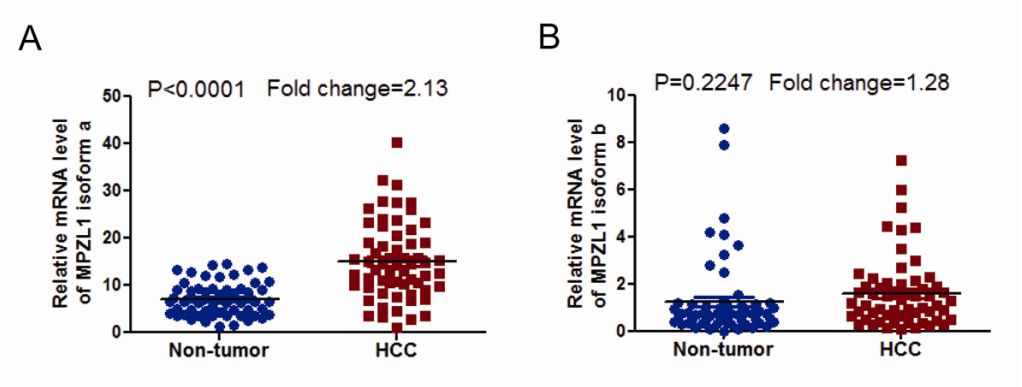

Supplementary information, Figure S2 Examination of the relative expression levels of MPZL1 isoforms in HCCs. q-PCR analysis of the relative expression levels of isoform a **(A)** and isoform b **(B)** in 58 paired HCCs. Statistical analysis of differences between the two groups was performed by paired Student's *t* test and $P < 0.05$ was considered statistically significant.

There are three isoforms of MPZL1 [1-3]. The variant 1 represents the longest transcript, with a coding region of 810 bp, and encodes the longest isoform a, also known as MPZL1. The variant 2 lacks an alternate coding exon compared to variant 1, which causes a frameshift, with a coding region of 630 bp. The resulting isoform b is shorter and has a distinct C-terminus compared to isoform a, also known as MPZL1a. The variant 3 lacks three alternate exons in the 3' coding region that results in a frameshift, compared to variant 1, with a coding region of 360 bp. The encoded isoform c is shorter than isoform a, also designated as MPZL1b.

The three isoforms are all type 1 transmembrane glycoproteins with identical extracellular and transmembrane domains, but differ in their cytoplasmic tails. The MPZL1 intracellular domain contains two SHP-2 binding immunoreceptor tyrosine-based inhibitory motifs (VIY^{246}AQL and VVY^{263}ADI) which are not present

in MPZL1a and MPZL1b, whereas the MPZL1a and MPZL1b isoforms could directly interact with MPZL1 and inhibit the ability of MPZL1 to interact with SHP-2. Recently, it has been demonstrated that the MPZL1, but not the MPZL1a and MPZLb, may be involved in regulation of integrin-mediated cell motility. However, overexpression of MPZL1a in human HT-1080 cells had a dominant negative effect by blocking concanavalin A (ConA)-induced tyrosine phosphorylation of full-length MPZL1 and recruitment of tyrosine phosphatase SHP-2. Therefore, MPZL1a may have an important role in cell signaling by counteracting with MPZL1. In this study, the isoform a (full-length MPZL1) was employed to determine the functional roles of MPZL1 in HCC. Furthermore, we also examined the relative expression levels of three isoforms of MPZL1 in 58 pairs of HCC and adjacent non-tumor tissues by quantitative real-time PCR (q-PCR). We found that only the isoform a (MPZL1) are overexpressed in HCC compared with adjacent non-tumor tissues, and positively correlated with the intrahepatic metastasis of HCC (Figure 2 and Supplementary Table S2). However, there is no significant difference between HCC and paired adjacent non-tumor tissues for the expression level of MPZL1a (Supplementary Figure S2). Additionally, we could not amplify the sequence and detect the expression status of isoform c (MPZL1b) in HCC and adjacent non-tumor tissues by q-PCR assays.

References:

1. *The Journal of biological chemistry* 1998; **273**:29367-29372;
2. *Biochem J* 2003; **370**:537-549.
3. *Biochemical and biophysical research communications* 2003; **303**:1028-1033.