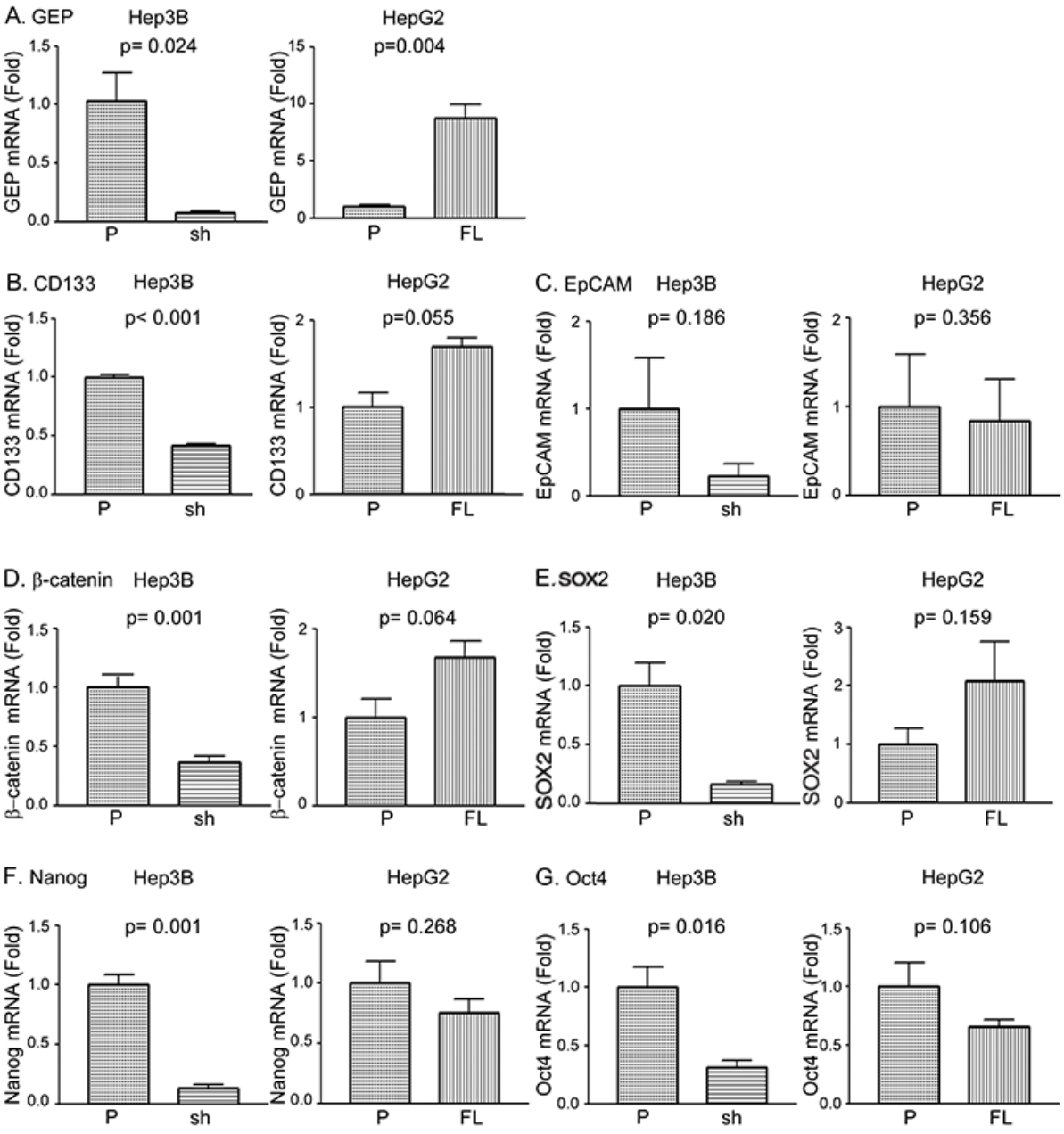
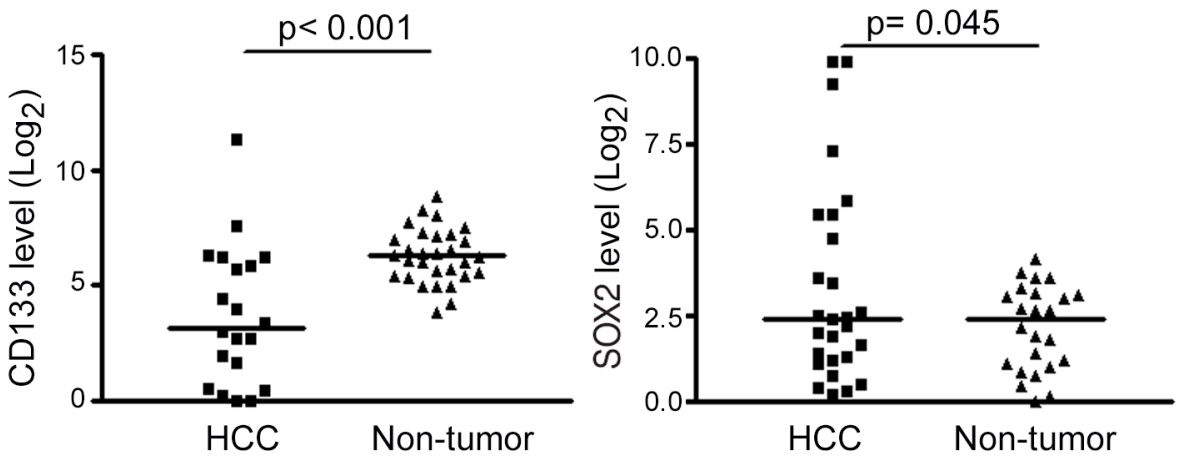
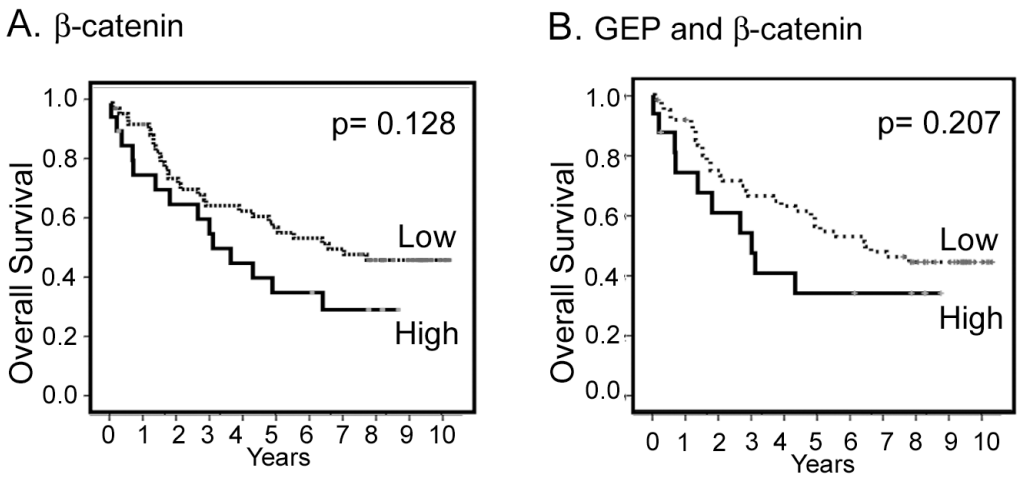
SUPPLEMENTARY FIGURES AND TABLE



Supplementary Figure S1: Effect of GEP modulation on the transcript expression levels of hepatic CSC markers and pluripotency-associated genes in HCC cell line models. GEP expression was modulated by transfection in HCC cell lines Hep3B (P: parental Hep3B cells with high endogenous GEP levels; sh: GEP shRNA transfectants) and HepG2 (P: parental HepG2 cells with low endogenous GEP levels; FL: GEP full-length cDNA transfectants). **A.** GEP transcript level was significantly suppressed in Hep3B sh (left panel) compared to its parental cells P; while significantly over-expressed in HepG2 FL (right panel) compared to its parental cells P. **B–G.** Expressions of CD133, EpCAM, β-catenin, SOX2, Nanog and Oct4 in the GEP transfectants were quantified by RT-qPCR.



Supplementary Figure S2: CD133 and SOX2 transcript levels in HCC clinical specimens. CD133 and SOX2 transcript levels in HCC tumor (HCC, n = 30) and the paralleled tumor-adjacent non-tumor liver tissues (non-tumor, n = 30), with the lines indicating the median values.



Supplementary Figure S3: Clinical significance of GEP and β-catenin in HCC clinical specimens. A. Kaplan–Meier overall survival plot according to β-catenin levels (log-rank test, p = 0.128). There were 56 patients with low β-catenin expression and 21 patients with high β-catenin expression (median overall survival of 85.4 months and 43.9 months, respectively). **B.** Kaplan–Meier overall survival plot according to GEP and β-catenin levels (log-rank test, p = 0.207). Patients (n = 77) were segregated into the low expression group (either one or both low in GEP and β-catenin) and the high expression group (both high in GEP and β-catenin). There were 61 patients in the low expression group (median overall survival, 77.6 months) and 16 patients in the high expression group (median overall survival, 36.1 months).

Supplementary Table S1: Clinico-pathological features in relation to the viability of HCC cells isolated from clinical specimens

Clinico-pathological features	Cell viability^		*P* value
	low	high	
Age			
Young (≤60)	24	22	0.822
Elderly (>60)	24	20	
Venous infiltration			
Absent	26	12	**0.014**
Present	22	30	
HBV association			
Negative for HBsAg	16	10	0.320
Positive for HBsAg	32	32	
Cellular differentiation (Edmondson-Steiner grade)			
Well-differentiated	40	26	**0.008**
Poorly-differentiated	5	14	
Tumor stage (version UICC7)			
Early stage	28	20	0.386
Late stage	15	16	
Tumor size			
Small (≤5cm)	19	10	0.110
Large (>5cm)	29	32	
Serum AFP level			
Low (≤400 ng/ml)	35	21	**0.025**
High (>400 ng/ml)	13	21	
Number of tumor nodules			
Single	30	26	0.954
Multiple (≥2)	18	16	

^Cell viability was modeled as categorical variable and 70% viability as the cutoff.