

Supplementary Table 1: Background of the patients of screening cohort

Background	PR group ¹ (n = 8)	PD group ¹ (n = 8)	<i>P</i> value ²
Age (years old)	68.5 (60.75 – 75.5)	73 (62.75 – 80.75)	0.2473
Sex: male/female	7 / 1	5 / 3	0.5692
Virus: HBV/HCV/NBNC	5 / 1 / 2	2 / 2 / 4	0.3189
Maximum tumor size (cm)	4.7 (3.85 – 6.7)	4.2 (2.4 – 11.7)	1
Number of tumor: ≤ 5 / ≥ 6	5 / 3	3 / 5	0.6193
BCLC: B / C ³	5 / 3	1 / 7	0.1189
Extrahepatic metastasis: without / with	2 / 6	4 / 4	0.6084
Vascular invasion: without / with	7 / 1	5 / 3	0.5692
Initial dose of sorafenib: 800mg / 400mg	6 / 2	6 / 2	1
AFP before treatment (ng/ml)	201 (12 – 1644)	4009.5 (9 – 12345)	0.4622
DCP before treatment (mAU/ml)	212 (28.25 – 1785)	6533.5 (2173 – 380064)	0.0157
Δ AFP ⁴	-0.47 (-0.75 - -0.19)	0.55 (-0.03 – 1.19)	0.0074
Δ DCP ⁴	0.13 (-0.38 – 15.6)	3.03 (1.45 – 5.64)	0.3446

¹Median value (25th–75th percentiles) for contentious variables and number of the patients for categorical variables are shown.

²*P* values by the Wilcoxon rank-sum test for contentious variables and by the Fischer's exact test for categorical variables are shown. The bold represent the *p* value of <0.05.

³ There is no HCC patient with BCLC stage A.

⁴ (Serum level after treatment – serum level before treatment)/ serum level before

treatment. The minus value represents the decrease of tumor marker after the sorafenib treatment.

PR: the group showing partial response at 3 months after the initiation of treatment.

PD: the group showing progressive disease at one month after the initiation of treatment.

Supplementary Table 2: Clinical factors and serum miR-181a-5p level for affecting overall survival in patients with BCLC-C HCC.

variables	Number of patients	<i>P</i> value ¹ (univariate)	<i>P</i> value ² (multivariate)	Hazard ratio (95% CI)
Age (yeas old)				
73 ≥	17	0.1204	-	-
74 ≤	13			
Sex				
male	24	0.1738	-	-
female	6			
Maximum size				
3.6 cm ≥	13	0.2666	-	-
3.7 cm ≤	17			
Number of tumor				
5 ≥	12	0.0194	0.1549	0.491 (0.165-1.30)
6 ≤	18			1
Extrahepatic metastasis				
presence	23	0.9519	-	-
absence	7			
Portal vein thrombosis				
presence	11	0.6412	-	-
absence	19			
Serum miR-181a-5p level				
high	10	0.0037	0.0194	0.267 (0.070-0.818)
low	20			1

¹ *P* value by log-rank test.

² *P* value by Cox proportional-hazards regression model.

Continuous valuables of age, tumor size and number of tumor were categorized using the median values. Bold denotes $p < 0.05$.