

Supplement Table 1. Clinicopathological features by FOXP4-AS1 expression levels

	n	Low	High	χ^2	P
Subjects, n	213	76	137		
Gender					
Female	32	10	22	0.322	0.570
Male	181	66	115		
Age, y					
≤ 55	155	46	109	8.939	0.003 *
> 55	58	30	28		
Family history					
No	181	67	114	0.937	0.333
Yes	32	9	23		
Drinking history					
No	163	53	110	3.032	0.082
Yes	50	23	27		
BMI					
≤ 25	171	58	113	1.434	0.231
> 25	42	18	24		
Liver cirrhosis					
No	20	3	17	4.113	0.043
Yes	193	73	120		
AFP, ng/mL					
< 400	100	51	49	19.275	0.001 *
≥ 400	113	25	88		
CEA, ng/mL					
≤ 5	193	68	125	0.179	0.672
> 5	20	8	12		
ALT, U/L					
≤ 40	126	51	75	3.091	0.079
> 40	87	25	62		
AST, U/L					
≤ 40	83	41	42	11.149	0.001 *
> 40	130	35	95		

TB, $\mu\text{mol/L}$	≤ 21	187	67	120	0.015	0.904
	>21	26	9	17		
GGT, U/L	≤ 50	61	27	34	2.734	0.098
	>50	152	49	103		
Tumor, n	<3	169	65	104	2.757	0.097
	≥ 3	44	11	33		
Tumor, cm	<5	44	25	19	10.796	0.001 *
	≥ 5	169	51	118		
Metastasis	No	181	68	113	1.872	0.171
	Yes	32	8	24		
BCLC stage	0/A	121	51	70	5.107	0.024 *
	B/C	92	25	67		

* A significant difference.

BMI, body mass index; AFP, alpha-fetoprotein; CEA, carcinoembryonic antigen; ALT, alanine aminotransferase; AST, aspartate aminotransferase ;GGT, γ -glutamyltransferase; TB, total bilirubin

Supplement Table 2. Cox Regression Analyses of factors predicting disease-free survival and overall survival of HCC

	DFS		OS	
	HR (95% CI)	P	HR (95% CI)	P
Gender (female/male)	2.426 (1.226- 4.901)	0.011 *	1.779 (0.891-3.552)	0.102
Age, y (<=55/>55)	0.751 (0.486- 1.161)	0.751	0.491 (0.281-0.858)	0.013 *
Family history (no/yes)	0.851 (0.465- 1.429)	0.475	1.189 (0.670-2.109)	0.554
Drinking history (no/yes)	1.305 (0.856- 1.990)	0.215	0.888 (0.670- 2.109)	0.661
BMI (<=25/>25)	0.857 (0.522- 1.406)	0.541	1.035 (0.608-1.762)	0.898
Liver cirrhosis (no/yes)	0.876 (0.470- 1.634)	0.678	1.214 (0.560-2.633)	0.624
AFP, ng/mL	1.719 (1.170- 2.172)	0.006	1.380-3.419)	0.001

(<400/ \geq 400)	2.527)	*		*
CEA (\leq 5/>5)	1.572 (0.880-	0.127	1.746 (0.926-3.291)	0.085
	2.807)			
ALT (\leq 40/>40)	0.779 (0.504-	0.261	0.687 (0.421-1.123)	0.134
	1.204)			
AST (\leq 40/>40)	1.719 (0.880-	0.051	2.346 (1.353-4.066)	0.002
	2.736)			*
TB (\leq 21/>21)	0.977 (0.533-	0.940	1.542 (0.853-2.788)	0.152
	1.791)			
GGT (\leq 50/>50)	1.900 (0.533-	0.011	2.432 (1.295-4.566)	0.006
	3.115)	*		*
Number of tumors	1.790 (1.168-	0.007	1.963 (1.223-3.150)	0.005
(<3/ \geq 3)	2.742)	*		*
Size of tumor, cm	1.931 (1.134-	0.015	2.921 (1.462-5.836)	0.002
(<5/ \geq 5)	3.287)	*		*
Metastasis (no/yes)	1.026 (0.585-	0.928	1.683 (0.976-2.901)	0.061

	1.800)			
BCLC stage (0,A/B,C)	1.587 (1.087- 2.371)	0.017 *	2.210 (1.437-3.398) *	0.001
FOXP4-AS1 expression (low/high)	1.552 (1.027- 2.344)	0.037 *	1.980 (1.209-3.242) *	0.007

* A significant difference.

BMI, body mass index; AFP, alpha-fetoprotein; CEA, carcinoembryonic antigen; DFS, disease-free survival; ALT, alanine aminotransferase; AST, aspartate aminotransferase ;GGT, γ -glutamyltransferase; OS, overall survival; TB, total bilirubin

Supplement Table 3. Top 20 hub genes in the PPI networks.

Nodal degree		
Upregulated	PRC1	19
	MCM4	17
	CDCA5	17
	HJURP	17
	CENPN	17
	DTL	16
	CKAP2	12
	RPL36A	9
	SNRPD1	9
	KNSTRN	9
Downregulated	IGFBP3	7
	NTF3	7
	GABBR1	7
	GHR	5
	NGFR	5
	ADRA2B	5
	GDF2	4
	ADRA1A	3
	SLC11A1	3
	FOSB	3

Supplement 1: Supplement Tables 1-3

Supplement Table 1. Association between FOXP4-AS1 expression and clinicopathological features

Supplement Table 2. Cox Regression Analyses of factors predicting disease-free survival and overall survival of HCC.

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