

**Supplementary Table 1. Clinical characteristics of four extrahepatic metastasis sites among metastatic liver cancer patients**

Characteristic	Lung (%)			Bone (%)			Distant lymph (%)			Brain (%)		
	No	Yes	P	No	Yes	P	No	Yes	P	No	Yes	P
<b>Age</b>			.0120			0.326			0.183			0.909
< 60	436 (38.5)	273 (42.5)		495 (39.8)	214 (40.4)		541 (39.1)	168 (43.1)		696 (40.0)	13 (38.2)	
60-74	497 (43.9)	276 (43.0)		534 (42.9)	239 (45.1)		605 (43.7)	168 (43.1)		757 (43.5)	16 (47.1)	
≥ 75	200 (17.7)	93 (14.5)		216 (17.3)	77 (14.5)		239 (17.3)	54 (13.8)		288 (16.5)	5 (14.7)	
<b>Marital status</b>			0.428			0.448			0.587			0.599
Married	579 (51.5)	312 (48.6)		637 (51.2)	254 (47.9)		697 (50.3)	194 (49.7)		876 (50.3)	15 (44.1)	
Unmarried	496 (43.8)	301 (46.9)		549 (44.1)	248 (46.8)		624 (45.1)	173 (44.4)		779 (44.7)	18 (52.9)	
Unknown	58 (5.1)	29 (4.5)		59 (4.7)	28 (5.3)		64 (4.6)	23 (5.9)		86 (4.9)	1 (2.9)	
<b>Race</b>			0.000			0.002			0.351			0.541
White	827 (73.0)	409 (63.7)		860 (69.1)	376 (70.9)		957 (69.1)	279 (71.5)		1213 (69.7)	23 (67.6)	
Black	144 (12.7)	115 (17.9)		167 (13.4)	92 (17.4)		211 (15.2)	48 (12.3)		252 (14.5)	7 (20.6)	
Other	162 (14.3)	118 (18.4)		218 (17.5)	62 (11.7)		217 (15.7)	63 (16.2)		276 (15.9)	4 (11.8)	
<b>Gender</b>			0.824			0.000			0.026			0.948
Male	863 (76.2)	486 (75.7)		914 (73.4)	435 (82.1)		1036 (74.8)	313 (80.3)		1323 (76.0)	26 (76.5)	
Female	270 (23.8)	156 (24.3)		331 (26.6)	95 (17.9)		349 (25.2)	77 (19.7)		418 (24.0)	8 (23.5)	
<b>Histology</b>			0.001			0.000			0.000			0.442
HCC <sup>†</sup>	870 (76.8)	542 (84.4)		951 (76.4)	461 (87.0)		1065 (76.9)	347 (89.0)		1382 (79.4)	30 (88.2)	
ICC <sup>‡</sup>	260 (22.9)	99 (15.4)		291 (23.4)	68 (12.8)		318 (23.0)	41 (10.5)		355 (20.4)	4 (11.8)	
Combined HCC and ICC	3 (0.3)	1 (0.2)		3 (0.2)	1 (0.2)		2 (0.1)	2 (0.5)		4 (0.2)	0 (0.0)	
<b>Grade</b>			0.638			0.000			0.004			0.143
High	89 (7.9)	39 (6.1)		93 (7.5)	35 (6.6)		102 (7.4)	26 (6.7)		125 (7.2)	3 (8.8)	
Moderate	178 (15.7)	94 (14.6)		212 (17.0)	60 (11.3)		210 (15.2)	62 (15.9)		269 (15.5)	3 (8.8)	
Poor	180 (15.9)	106 (16.5)		220 (17.7)	66 (12.5)		203 (14.7)	83 (21.3)		282 (16.2)	4 (11.8)	
Undifferentiation	15 (1.3)	9 (1.4)		22 (1.8)	2 (0.4)		15 (1.1)	9 (2.3)		22 (1.3)	2 (5.9)	
Unknown	671 (59.2)	394 (61.4)		698 (56.1)	367 (62.9)		855 (61.7)	210 (53.8)		1043 (59.9)	22 (64.7)	
<b>Surgery therapy</b>			0.001			0.090			0.818			0.633
Surgery	77 (6.8)	17 (2.6)		74 (5.9)	20 (3.8)		75 (5.4)	19 (4.9)		91 (5.2)	3 (8.8)	
No surgery	1055 (93.1)	623 (97.0)		1168 (93.8)	510 (96.2)		1308 (94.4)	370 (94.9)		1647 (94.6)	31 (91.2)	
Unknown	1 (0.1)	2 (0.3)		3 (0.2)	0 (0.0)		2 (0.1)	1 (0.3)		3 (0.2)	0 (0.0)	
<b>Radiation therapy</b>			0.000			0.000			0.000			0.000
Radiation	240 (21.2)	64 (10.0)		73 (5.9)	231 (43.6)		269 (19.4)	35 (9.0)		289 (16.6)	15 (44.1)	
No Radiation	887 (78.3)	578 (90.0)		1168 (93.8)	297 (56.0)		1111 (80.2)	354 (90.8)		1446 (83.1)	19 (55.9)	
Unknown	6 (0.5)	0 (0.0)		4 (0.3)	2 (0.4)		5 (0.4)	1 (0.3)		6 (0.3)	0 (0.0)	

Abbreviation: †, HCC, hepatocellular carcinoma; ‡, ICC, cholangiocarcinoma.

**Supplementary Table 2. Clinical characteristics of metastatic cancer patients with different histological subtypes**

Characteristic	HCC <sup>†</sup>		ICC <sup>‡</sup>		P value
	Number	%	Number	%	
<b>Age</b>					<0.001
<60	603	42.7	105	29.2	
60-74	584	41.4	188	52.4	
≥75	225	15.9	66	18.4	
<b>Marital status</b>					
Married	677	47.9	213	59.3	0.001
Unmarried	664	47.0	131	36.5	
Unknown	71	5.0	15	4.2	
<b>Race</b>					0.001
White	961	68.1	272	75.8	
Black	227	16.1	31	8.6	
Other	224	15.9	56	15.6	
<b>Gender</b>					<0.001
Male	1160	82.2	187	52.1	
Female	252	17.8	172	47.9	
<b>Grade</b>					0.021
High	114	8.1	14	3.9	
Moderate	214	15.2	56	15.6	
Poor	233	16.5	53	14.8	
Undifferentiation	22	1.6	2	0.6	
Unknown	829	58.7	234	65.2	
<b>Surgery therapy</b>					0.114
Surgery	72	5.1	21	5.8	
No surgery	1339	94.8	336	93.6	
Unknown	1	0.1	3	0.6	
<b>Radiation therapy</b>					<0.001
Radiation	268	19.0	36	10.2	
No Radiation	1139	80.7	322	89.7	
Unknown	5	0.4	1	0.3	

Abbreviation: †, HCC, hepatocellular carcinoma; ‡, ICC, cholangiocarcinoma.