

SUPPLEMENTARY FILE

Prognostic value of desmoplastic growth patterns in resected hepatocellular carcinoma

*Niklas Sarelin^{1,2}, Valtteri Kairaluoma^{1,3}, Juha Saarnio¹, Joonas H. Kauppila^{1,4}, Jan Böhm³, Heikki Huhta¹, Juha P. Väyrynen¹, Olli Helminen¹

Table S1. Baseline characteristics for resected HCC stratified by having a uniformly desmoplastic histopathological growth pattern (HGP).

		Uniform desmoplastic HGP		
		Yes, N=44	No, N=30	P-value
Age, years. Median (IQR)		70.6 (64.3-74.6)	68.9 (60.9-72.6)	0.331
Male. N (%)		31 (70.5%)	15 (50.0%)	0.075
Charlson Comorbidity Index. Mean (SD)		1.2 (0.9)	1.4 (0.9)	0.515
Cirrhosis. N (%)		17 (38.6%)	16 (53.3%)	0.212
Child-Pugh Score. N (%)	A	31 (77.5%)	27 (90.0%)	0.173
	B	9 (22.5%)	3 (10.0%)	
	C	0 (0%)	0 (0%)	
Alpha-fetoprotein, µg/L. Median (IQR)		5 (3-14)	6 (3-68)	0.916
Tumour size, mm. Median (IQR)		50 (30-60)	44 (27-85)	0.650
Unifocal tumour. N (%)		38 (86.4%)	22 (73.3%)	0.160
BCLC Stage. N (%)	Very early (0)	1 (2.3%)	1 (3.3%)	0.294
	Early (A)	39 (88.6%)	23 (76.7%)	
	Intermediate (B)	3 (6.8%)	6 (20.0%)	
	Advanced (C)	1 (2.3%)	0 (0%)	
	Terminal (D)	0 (0%)	0 (0%)	
TNM stage. N (%)	Stage 1	32 (72.7%)	19 (63.3%)	0.399
	Stage 2	10 (22.7%)	9 (30.0%)	
	Stage 3	1 (2.3%)	2 (6.7%)	
	Stage 4	1 (2.3%)	0 (0%)	
Tumour grade. N (%)	Grade 1	17 (38.6%)	9 (30.0%)	0.474
	Grade 2	22 (50.0%)	17 (56.7%)	
	Grade 3	5 (11.4%)	4 (13.3%)	
Positive resection margin. N (%)		1 (2.4%)	5 (18.5%)	0.021

Table S2. Baseline characteristics for resected HCC according to the minimum thickness of the desmoplastic rim.

		Any amount of non-dHGP N=30	Low minimum thickness (<94µm) N=22	High minimum thickness (≥94µm) N=22	P-value
Age, years. Median (IQR)		68.9 (60.9-72.6)	72.7 (64.0-76.1)	69.2 (64.5-73.1)	0.322
Male. N (%)		15 (50.0%)	18 (81.8%)	13 (59.1%)	
Charlson Comorbidity Index. Mean (SD)		1.4 (0.9)	1.2 (0.9)	1.3 (0.9)	0.750
Cirrhosis. N (%)		16 (53.3%)	9 (40.9%)	8 (36.4%)	0.443
Child-Pugh Score. N (%)	A	27 (90.0%)	16 (76.2%)	15 (78.9%)	0.385
	B	3 (10.0%)	5 (23.8%)	4 (21.1%)	
	C	0 (0%)	0 (0%)	0 (0%)	
Alpha-fetoprotein, µg/L. Median (IQR)		6 (3-68)	7 (4-14)	4 (2-108)	0.466
Tumour size, mm. Median (IQR)		44 (27-85)	41 (29-50)	52 (38-90)	0.339
Unifocal tumour. N (%)		22 (73.3%)	18 (81.8%)	20 (90.9%)	0.282
BCLC Stage. N (%)	Very early (0)	1 (3.3%)	0 (0%)	1 (4.5%)	0.325
	Early (A)	23 (76.7%)	19 (86.4%)	20 (90.9%)	
	Intermediate (B)	6 (20.0%)	3 (13.6%)	0 (0%)	
	Advanced (C)	0 (0%)	0 (0%)	1 (4.5%)	
	Terminal (D)	0 (0%)	0 (0%)	0 (0%)	
TNM stage. N (%)	Stage 1	19 (63.3%)	14 (63.6%)	18 (81.8%)	0.343
	Stage 2	9 (30.0%)	7 (31.8%)	3 (13.6%)	
	Stage 3	2 (6.7%)	1 (4.5%)	0 (0%)	
	Stage 4	0 (0%)	0 (0%)	1 (4.5%)	
Tumour grade. N (%)	Grade 1	9 (30.0%)	7 (31.8%)	10 (45.5%)	0.657
	Grade 2	17 (56.7%)	13 (59.1%)	9 (40.9%)	
	Grade 3	4 (13.3%)	2 (9.1%)	3 (13.6%)	
Positive resection margin. N (%)		5 (18.5%)	0 (0%)	1 (4.8%)	0.061

Table S3. Baseline characteristics for resected HCC according to the maximum thickness of the desmoplastic rim.

		Any amount of non-dHGP N=30	Low maximum thickness (<1302 µm) N=22	High maximum thickness (≥ 1302 µm) N=22	P-value
Age, years. Median (IQR)		68.9 (60.9-72.6)	72.5 (66.4-77.6)	68.9 (64.0-73.1)	0.177
Male. N (%)		15 (50.0%)	16 (72.7%)	15 (68.2%)	0.199
Charlson Comorbidity Index. Mean (SD)		1.4 (0.9)	1.0 (0.8)	1.5 (0.9)	0.089
Cirrhosis. N (%)		16 (53.3%)	8 (36.4%)	9 (40.9%)	0.443
Child-Pugh Score. N (%)	A	27 (90.0%)	15 (78.9%)	16 (76.2%)	0.385
	B	3 (10.0%)	4 (21.1%)	5 (23.8%)	
	C	0 (0%)	0 (0%)	0 (0%)	
Alpha-fetoprotein, µg/L. Median (IQR)		6 (3-68)	6 (3-11)	4 (3-108)	0.423
Tumour size, mm. Median (IQR)		44 (27-85)	46 (29-54)	50 (35-90)	0.484
Unifocal tumour. N (%)		22 (73.3%)	17 (77.3%)	21 (95.5%)	0.117
BCLC Stage. N (%)	Very early (0)	1 (3.3%)	0 (0%)	1 (4.5%)	0.287
	Early (A)	23 (76.7%)	19 (86.4%)	20 (90.9%)	
	Intermediate (B)	6 (20.0%)	2 (9.1%)	1 (4.5%)	
	Advanced (C)	0 (0%)	1 (4.5%)	0 (0%)	
	Terminal (D)	0 (0%)	0 (0%)	0 (0%)	
TNM stage. N (%)	Stage 1	19 (63.3%)	14 (63.6%)	18 (81.8%)	0.256
	Stage 2	9 (30.0%)	6 (27.3%)	3 (13.6%)	
	Stage 3	2 (6.7%)	1 (4.5%)	0 (0%)	
	Stage 4	0 (0%)	1 (4.5%)	1 (4.5%)	
Tumour grade. N (%)	Grade 1	9 (30.0%)	13 (59.1%)	4 (18.2%)	0.014
	Grade 2	17 (56.7%)	8 (36.4%)	14 (63.6%)	
	Grade 3	4 (13.3%)	1 (4.5%)	4 (18.2%)	
Positive resection margin. N (%)		5 (18.5%)	1 (4.5%)	0 (0%)	0.061

Table S4. Baseline characteristics for resected HCC according to the average thickness of the desmoplastic rim.

		Any amount of non-dHGP N=30	Low average thickness (<516µm) N=22	High average thickness (≥516m) N=22	P-value
Age, years. Median (IQR)		68.9 (60.9-72.6)	73.8 (66.4-76.1)	68.9 (63.8-72.6)	0.088
Male. N (%)		15 (50.0%)	17 (77.3%)	14 (63.6%)	0.136
Charlson Comorbidity Index. Mean (SD)		1.4 (0.9)	0.9 (0.8)	1.6 (0.8)	0.011
Cirrhosis. N (%)		16 (53.3%)	8 (36.4%)	9 (40.9%)	0.443
Child-Pugh Score. N (%)	A	27 (90.0%)	14 (70.0%)	17 (85.0%)	0.181
	B	3 (10.0%)	6 (30.0%)	3 (15.0%)	
	C	0 (0%)	0 (0%)	0 (0%)	
Alpha-fetoprotein, µg/L. Median (IQR)		6 (3-68)	5 (3-8)	5 (3-108)	0.379
Tumour size, mm. Median (IQR)		44 (27-85)	44 (29-52)	50 (35-90)	0.389
Unifocal tumour. N (%)		22 (73.3%)	18 (81.8%)	20 (90.9%)	0.282
BCLC Stage. N (%)	Very early (0)	1 (3.3%)	0 (0%)	1 (4.5%)	0.552
	Early (A)	23 (76.7%)	20 (90.9%)	19 (86.4%)	
	Intermediate (B)	6 (20.0%)	2 (9.1%)	1 (4.5%)	
	Advanced (C)	0 (0%)	0 (0%)	1 (4.5%)	
	Terminal (D)	0 (0%)	0 (0%)	0 (0%)	
TNM stage. N (%)	Stage 1	19 (63.3%)	14 (63.6%)	18 (81.8%)	0.343
	Stage 2	9 (30.0%)	7 (31.8%)	3 (13.6%)	
	Stage 3	2 (6.7%)	1 (4.5%)	0 (0%)	
	Stage 4	0 (0%)	0 (0%)	1 (4.5%)	
Tumour grade. N (%)	Grade 1	9 (30.0%)	11 (50.0%)	6 (27.3%)	0.146
	Grade 2	17 (56.7%)	10 (45.5%)	14 (54.5%)	
	Grade 3	4 (13.3%)	1 (4.5%)	4 (18.2%)	
Positive resection margin. N (%)		5 (18.5%)	1 (4.8%)	0 (0%)	0.061