

Supplementary Table S1: Cox-regression model for Overall Survival in the training cohort.

Parameters	Univariable		Multivariable (n=304 patients with all tested variables available)	
	HR (95% CI)	P	HR (95% CI)	P
Age (continuous) (n=370)	1.0 (0.98-1.01)	P =0.39		
Gender (Female vs Male) (n=370)	0.87 (0.57-1.31)	P =0.49		
Cirrhosis (Present vs absent) (n=306)	1.17 (0.89-1.54)	P =0.27		
Albumin: - continuous - dichotomized (<36 vs ≥36) (n=364)	0.95 (0.94-0.97) 1.58 (1.27-1.97)	P <0.001 P <0.001	1.34 (1.05-1.71)	P =0.02
Bilirubin: - continuous - dichotomized (>17 vs ≤17) (n=365)	1.01 (1.00-1.01) 1.57 (1.26-1.95)	P <0.001 P <0.001	1.82 (1.42-2.34)	P <0.001
Previous Treatment for HCC (Yes vs No) (n=306)	0.74 (0.58-0.94)	P =0.012	NS	NS
Performance status (>0 vs 0) (n=368)	1.64 (1.31-2.04)	P <0.001	1.82 (1.40-2.37)	P <0.001
Size of the largest liver lesion: - continuous - dichotomized (>7cm vs ≤7cm) (n=370)	1.01 (1.00-1.01) 1.61 (1.29-2.00)	P <0.001 P <0.001	1.72 (1.34-2.22)	P <0.001
Extra-hepatic spread (Present vs absent) (n=360)	1.02 (0.81-1.28)	P =0.88		
<del>Portal vein thrombosis</del> Macrovascular invasion (Present vs absent) (n=359)	1.37 (1.10-1.72)	P =0.006	NS	NS
AFP: - continuous - dichotomized (>400 vs ≤400) (n=366)	1.00 (1.00-1.00) 1.86 (1.49-2.33)	P <0.001 P <0.001	1.53 (1.19-1.97)	P =0.001

Supplementary Table S2: Survival according to different scores.

	n in each class	median OS [95% CI]	6-months OS	12-months OS	24-months OS
Training cohort (n=362)					
SAP A	109 (30.1%)	14.9 months [95% CI: 10.9-18.8]	86%	59%	31%
SAP B	191 (52.8%)	7.2 months [95% CI: 6.3-8.1]	59%	32%	12%
SAP C	62 (17.2%)	2.5 months [95% CI: 1.6-3.3]	23%	13%	5%
Validation cohort (n=468)					
SAP A	140 (29.9%)	15.8 months [11.2-20.4]	83%	59%	39%
SAP B	249 (53.2%)	8.2 months [7.1-9.3]	61%	37%	16%
SAP C	79 (16.9%)	3.7 months [3.3-4.1]	26%	15%	2%
ALBI grade 1	182 (38.9%)	11.8 months [8.9-14.7]	77%	50%	32%
ALBI grade 2	260 (55.6%)	7.0 months [5.7-8.3]	54%	34%	13%
ALBI grade 3	26 (5.6%)	2.1 months [0.7-3.5]	29%	25%	15%
BCLC B	55 (11.8%)	19.6 months [15.1-24.2]	83%	71%	39%
BCLC C	409 (87.4%)	7.9 months [6.8-9.0]	59%	35%	18%
BCLC D	4 (0.9%)	1.5 months [0.6-2.4]	NA	NA	NA
HAP A	82 (17.5%)	18.0 months [10.7-25.3]	86%	60%	44%
HAP B	130 (27.8%)	11.6 months [8.3-14.9]	74%	50%	28%
HAP A and B	212 (45.3%)	14.1 months [11.3-16.8]	79%	54%	34%
HAP C	164 (35.0%)	7.9 months [6.2-9.6]	58%	34%	13%
HAP D	92 (19.7%)	3.8 months [3.4-4.2]	27%	15%	2%
<a href="#">Validation cohort "Best candidates":</a>					

<u>Child Pugh A, BCLC B or C (n=356)</u>					
<u>SAP A</u>	<u>127</u> <u>(35.7%)</u>	<u>18.0 months [12.8-23.2]</u>	<u>85%</u>	<u>62%</u>	<u>40%</u>
<u>SAP B</u>	<u>194</u> <u>(54.5%)</u>	<u>8.8 months [7.3-10.3]</u>	<u>65%</u>	<u>39%</u>	<u>16%</u>
<u>SAP C</u>	<u>35 (9.8%)</u>	<u>4.5 months [3.2-5.8]</u>	<u>31%</u>	<u>16%</u>	<u>0%</u>
<u>ALBI grade 1</u>	<u>170</u> <u>(47.8%)</u>	<u>12.8 months [9.3-16.3]</u>	<u>79%</u>	<u>52%</u>	<u>33%</u>
<u>ALBI grade 2</u>	<u>186</u> <u>(52.2%)</u>	<u>8.2 months [6.6-9.8]</u>	<u>60%</u>	<u>39%</u>	<u>14%</u>
<u>ALBI grade 3</u>	<u>0 (0%)</u>				
<u>BCLC B</u>	<u>45</u> <u>(12.6%)</u>	<u>22.8 months [18.0-27.6]</u>	<u>84%</u>	<u>74%</u>	<u>38%</u>
<u>BCLC C</u>	<u>311</u> <u>(87.4%)</u>	<u>14.6 months [12.5-15.6]</u>	<u>66%</u>	<u>41%</u>	<u>22%</u>
<u>BCLC D</u>	<u>0 (0.0%)</u>				
<u>HAP A</u>	<u>77</u> <u>(21.6%)</u>	<u>22.7 months [19.0-26.5]</u>	<u>89%</u>	<u>65%</u>	<u>47%</u>
<u>HAP B</u>	<u>112</u> <u>(31.5%)</u>	<u>17.2 months [14.4-20.0]</u>	<u>75%</u>	<u>52%</u>	<u>28%</u>
<u>HAP A and B</u>	<u>189</u> <u>(53.1%)</u>	<u>19.4 months [17.1-21.7]</u>	<u>81%</u>	<u>57%</u>	<u>36%</u>
<u>HAP C</u>	<u>127</u> <u>(35.7%)</u>	<u>11.0 months [9.2-12.8]</u>	<u>61%</u>	<u>35%</u>	<u>11%</u>
<u>HAP D</u>	<u>40</u> <u>(11.2%)</u>	<u>6.7 months [4.8-8.6]</u>	<u>35%</u>	<u>19%</u>	<u>0%</u>

Supplementary Table S3: Comparison of the results of the worse class of each score in the validation cohort.

Score	number in the class	median OS	6-months survival	AUC 6 month	12-months survival
SAP C	79 (16.9%)	3.7 months [3.3-4.1]	26%	0.627 [0.59-0.663]	15%
ALBI grade 3	26 (5.6%)	2.1 months [0.7-3.5]	29%	0.538 [0.515-0.563]	25%
BCLC D	4 (0.9%)	1.5 months [0.6-2.4]	NA	0.506 [0.497-0.518]	NA
HAP D	92 (19.7%)	3.8 months [3.4-4.2]	27%	0.644 [0.603-0.685]	15%