

Table S1 Univariate and multivariate analysis of disease-free survival for salvage liver transplantation strategy

| Variable | Entire patients (n=746) | | | |
|-----------------------------------|-------------------------|---------|-----------------------|---------|
| | Univariate analysis | | Multivariate analysis | |
| | HR (95% CI) | P | HR (95% CI) | P |
| Objects in preoperative condition | | | | |
| AFP (ng/mL) | | | | |
| ≤400 | 2.555 (1.911-3.415) | <0.0001 | 2.198 (1.635-2.955) | <0.0001 |
| >400 | | | | |
| Tumor maximum size (cm) | | | | |
| ≤8 | 2.763 (2.062-3.703) | <0.0001 | 1.703 (1.148-2.525) | 0.008 |
| >8 | | | | |
| Tumor number | | | | |
| ≤3 | 2.190 (1.633-2.937) | <0.0001 | 1.566 (1.108-2.212) | 0.011 |
| >3 | | | | |
| Total tumor diameter (cm) | | | | |
| ≤8 | 2.929 (1.974-4.346) | <0.0001 | 1.833 (1.144-2.935) | 0.012 |
| >8 | | | | |
| MELD score | | | | |
| ≤15 | 0.909 (0.686-1.206) | 0.508 | | |
| >15 | | | | |
| HBV (+) | 1.583 (0.861-2.911) | 0.140 | | |
| Preoperative TACE | 1.658 (1.248-2.203) | 0.001 | 1.461 (1.096-1.947) | 0.009 |
| Sorafenib | 2.714 (1.203-6.122) | 0.016 | 3.592 (1.572-8.208) | 0.002 |
| RFA | 0.962 (0.702-1.317) | 0.807 | | |
| Child-Pugh A | 1.141 (0.846-1.539) | 0.387 | | |

The variables (tumor maximum size, tumor number and total tumor diameter) used in above analysis were the post-operative pathological data of tumor to make the analysis more accurate. However, such variables could be obtained from imaging date before liver transplantation. SLT: salvage liver transplantation; HR: hazard ratio; HBV: hepatitis B virus; AFP: alpha fetoprotein; MELD: model for end-stage liver disease; TACE: transcatheter arterial chemoembolization; RFA: radio frequency ablation.

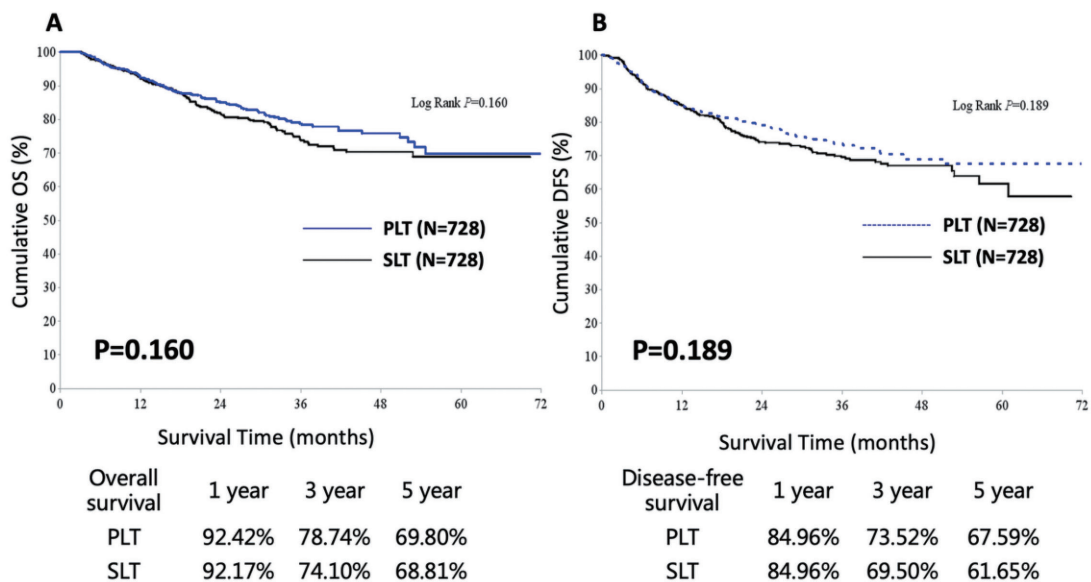


Figure S1 Survival curves for recipients in SLT and PLT groups. OS (A) and DFS (B) between SLT and PLT groups after propensity score matching. SLT, salvage liver transplantation; PLT, primary liver transplantation; OS, overall survival; DFS, disease free survival.

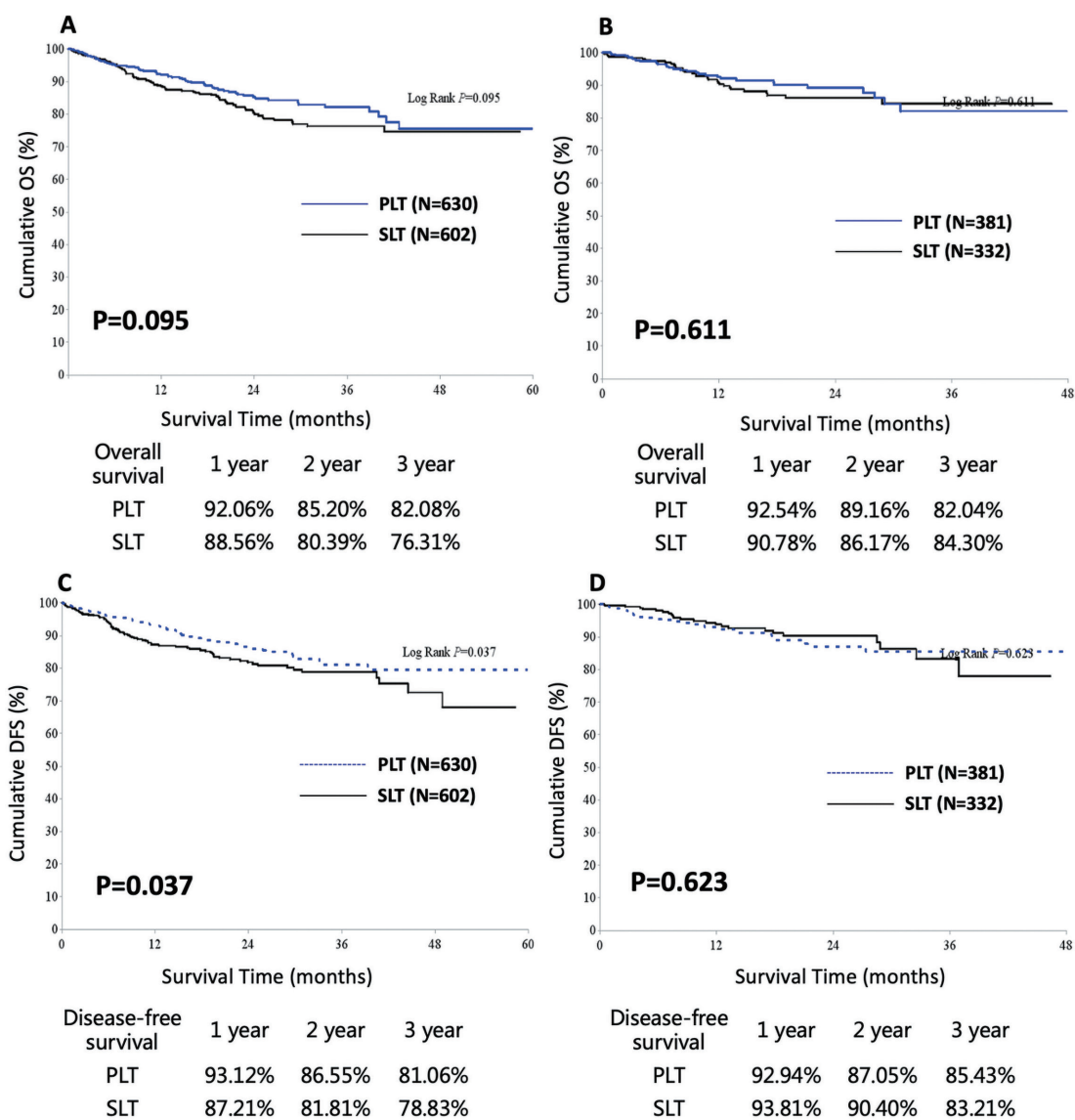


Figure S2 Landmark OS and DFS between the SLT and DLT groups after propensity score matching; The probabilities of surviving an additional 1-, 2- and 3-year given survival to 1 (A) and 2 (B) years; The disease free survival an additional 1-, 2- and 3-year, given that DFS event was not experienced at 1 (C) and 2 (D) years. SLT, salvage liver transplantation; PLT, primary liver transplantation; OS, overall survival; DFS, disease free survival.

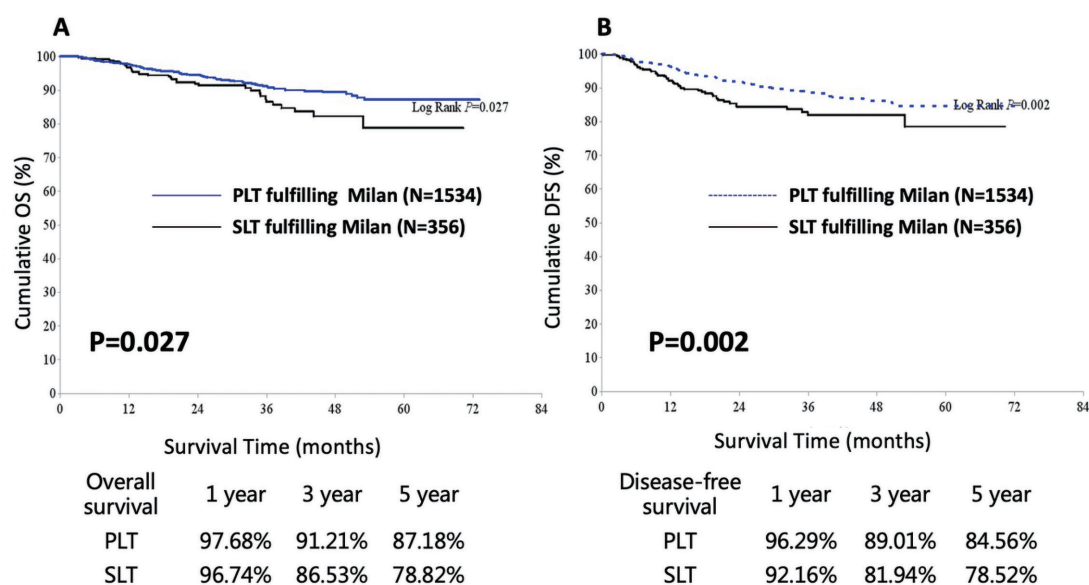


Figure 3 Survival curves for recipients in SLT and PLT groups. OS (A) and DFS (B) in recipients fulfilling Milan criteria before propensity score matching between SLT and PLT groups. SLT, salvage liver transplantation; PLT, primary liver transplantation; OS, overall survival; DFS, disease free survival.

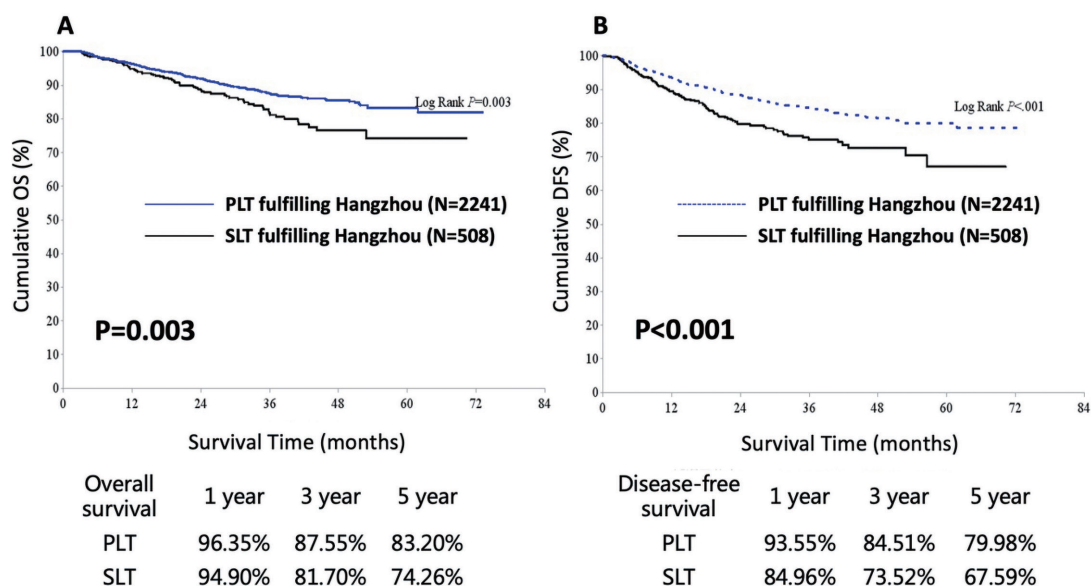


Figure S4 Survival curves for recipients in SLT and PLT groups. OS (A) and DFS (B) in recipients fulfilling Hangzhou criteria before propensity score matching between SLT and PLT groups. SLT, salvage liver transplantation; PLT, primary liver transplantation; OS, overall survival; DFS, disease free survival.

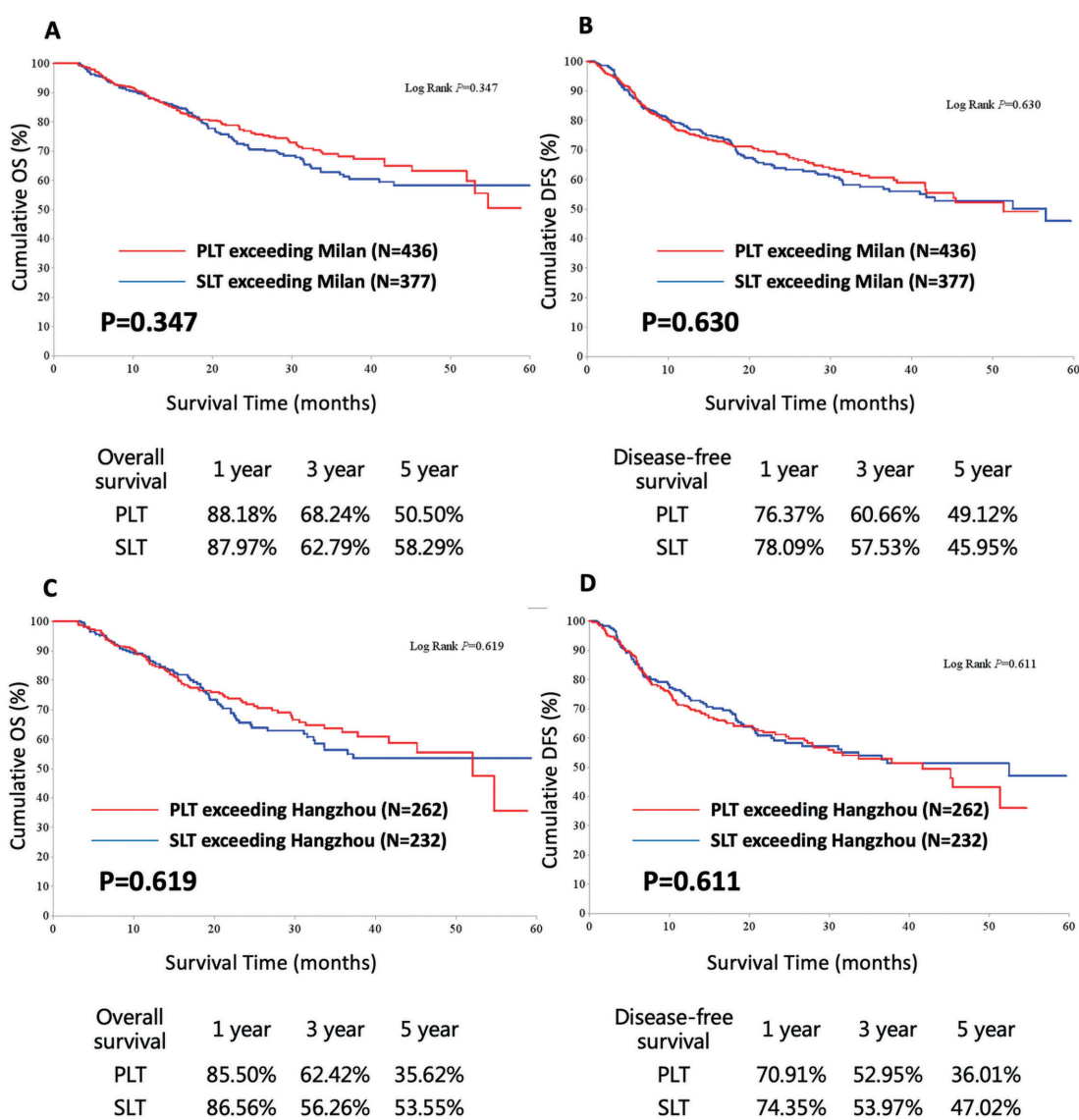


Figure S5 Survival curves for recipients in SLT and PLT groups. OS (A) and DFS (B) in recipients exceeding Milan criteria before propensity score matching between SLT and PLT groups; OS (C) and DFS (D) in recipients exceeding Hangzhou criteria before propensity score matching between SLT and PLT groups. SLT, salvage liver transplantation; PLT, primary liver transplantation; OS, overall survival; DFS, disease free survival.

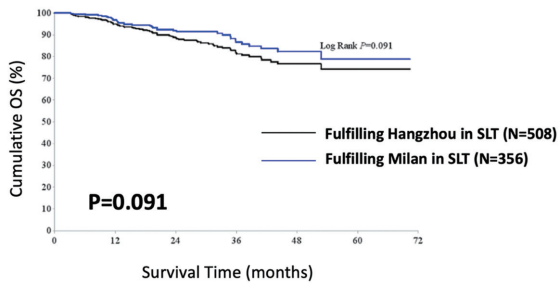


Figure S6 Comparison of survival outcomes between the patients within the Milan and Hangzhou criteria in salvage liver transplantation group.

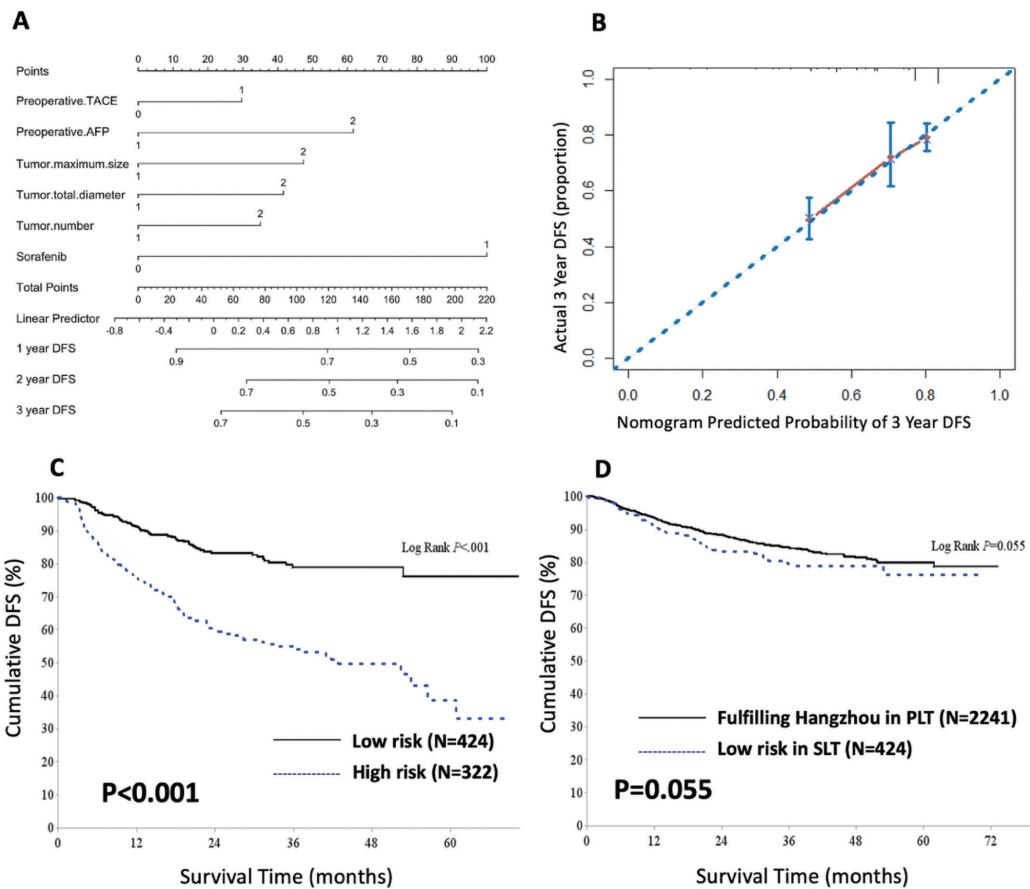


Figure S7 Nomograms to classify recipients in SLT group. The nomogram for the prediction of 3-year DFS (A). The calibration curves of the nomogram for the prediction of 3-year DFS (B) in the internal validation. The DFS of low-risk and high-risk patients was compared (C). The DFS of recipients in low-risk SLT group vs recipients fulfilling Hangzhou criteria in PLT group (D). SLT, salvage liver transplantation; PLT, primary liver transplantation; DFS, disease free survival.