**Supplementary Table 3.** Univariate and Multivariate analysis in the validation cohort (n=254)**.**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Univariate****analysis** | **Multivariate analysis** |
| **A** | **B** | **C** |
| **P** | **HR****(95%CI)** | **P** | **HR****(95%CI)** | **P** | **HR****(95%CI)** | **P** |
| TB, mol/L(>22 vs. ≤22) | **0.025** | 2.062(1.084-3.923) | **0.027** | 2.028(1.067-3.854) | **0.031** | 1.789(0.947-3.381) | 0.073 |
| Serum AFP, ng/ml(>20 vs. ≤20) | **0.001** | 1.294 (0.824-2.032) | 0.263 | 1.331(0.846-2.095) | 0.216 | 1.276(1.074-2.418) | 0.275 |
| γ-GT, U/L(≤ 75 vs. >75) | **0.017** | 0.702(0.333-1.480) | 0.353 | 0.833(0.385-1.805) | 0.644 | 0.765(0.362-1.617) | 0.483 |
| Tumor size (cm)(> 5 vs. ≤ 5) | **< 0.0001** | 2.286(1.461-3.577) | **<0.0001** | 2.187(1.395-3.429) | **0.001** | 2.322(1.483-3.634) | **<0.0001** |
| Tumor differentiation (III+IV vs. I+II) | **<0.0001** | 1.638(1.057-2.537) | **0.027** | 1.695(1.100-2.613) | **0.017** | 1.726(1.139-2.617) | **0.010** |
| Microvascular invasion(yes vs. no) | **< 0.0001** | 1.418(0.650-3.096) | 0.380 | 1.391(0.639-3.030) | 0.406 | 2.398(1.557-3.693) | **<0.0001** |
| TNM stage (III-II vs. I) | **< 0.0001** | 2.382(1.537-3.689) | **<0.0001** | 2.544(1.635-3.959) | **<0.0001** | 1.441(0.719-2.888) | 0.303 |
| CD8+PD1Int/ CD8+PD1+ (high vs. low) | **0.024** | 0.550(0.359-0.842) | **0.006** |  |  |  |  |
| CD8+PD1Hi/ CD8+PD1+ (high vs. low) | **0.038** |  |  | 1.665(1.078-2.573) | **0.022** |  |  |
| CD8+TIM3+ PD1Hi/ CD8+PD1+(high vs. low) | **0.021** |  |  |  |  | 2.198(1.297-3.725) | **0.003** |

**Abbreviations:** TB, total bilirubin; AFP, α-fetoprotein; γ-GT, Gamma-Glutamyl-transpeptidase; TNM, tumor-nodes-metastases; HR, hazard ratio; CI, confidential interval. A:CD8+PD1Int/ CD8+PD1+; B: CD8+PD1Hi/ CD8+PD1+; C:CD8+TIM3+PD1Hi/ CD8+PD1+. Multivariate analysis was performed by the Cox multivariate proportional hazard regression model with stepwise manner.