**Suppl 2. Univariate and multivariate analysis of overall survival in Cohort 1**

| Characteristics | Univariate analysis |  | Multivariate analysisa |  | Multivariate analysisb |
| --- | --- | --- | --- | --- | --- |
| Hazard ratio (95% CI) | P value | Hazard ratio (95% CI) | P value |  | Hazard ratio (95% CI) | P value |
| Gender |   |  |  |   |  |  |  |  |
| fenale vs male | 1.309 (0.585 - 2.928) | 0.512 |  |   |  |  |  |  |
| Age (year) |   |  |  |   |  |  |  |  |
| ≥60 vs <59 | 1.174 (0.502 - 2.748) | 0.711 |  |   |  |  |  |  |
| Tumor size (cm) |   |  |  |   |  |  |  |  |
| ≥5 vs <5 | 0.425 (0.159 - 1.139) | 0.089 |  | 0.436 (0.155 - 1.226) | 0.116 |  |  |  |
| Differentiation |   |  |  |   |  |  |  |  |
| moderately vs well | 0.940 (0.215 - 4.110) | 0.934 |  |   |  |  |  |  |
| poorly vs well | 1.245 (0.258 - 6.007) | 0.785 |  |   |  |  |  |  |
| Vessel invasion |   |  |  |   |  |  |  |  |
| yse vs no | 1.586 (0.534 - 4.707) | 0.406 |  |  |  |  |  |  |
| Nerve invasion |   |  |  |   |  |  |  |  |
| yse vs no | 6.712 (1.964 - 22.936) | 0.002 |  | 3.632 (0.681 - 19.380) | 0.131 |  |  |  |
| T stage |   |  |  |   |  |  |  |  |
| Ⅲ-Ⅳ vs Ⅰ-Ⅱ | 1.957 (0.668 - 5.727) | 0.221 |  |  |  |  | 1.010 (0.316 - 3.234) | 0.986 |
| N stage |   |  |  |  |  |  |  |  |
| 1-2 vs 0 | 2.468 (1.055 - 5.774) | 0.037 |  | 0.962 (0.121 - 7.634) | 0.971 |  | 0.852 (0.112 - 6.503) | 0.877 |
| M stage |   |  |  |  |  |  |  |  |
| 1 vs 0 | 150.248 (13.221 - 1707.471) | < 0.001 |  | 23.776 (1.532 - 369.093) | 0.024 |  |  |  |
| Pathological stage |   |  |  |  |  |  |  |  |
| Ⅲ-Ⅳ vs Ⅰ-Ⅱ | 2.660 (1.102 - 6.420) | 0.030 |  | 2.243 (0.273 - 18.455) | 0.452 |  | 2.539 (0.297 - 21.711) | 0.395 |
| FBXO43 |   |  |  |  |  |  |  |  |
| high vs low | 3.958 (1.475 - 10.624) | 0.006 |  | 3.007 (1.074 - 8.419) | 0.036 |  | 3.469 (1.264 - 9.521) | 0.016 |

aModel a included tumor size, nerve invasion, N stage, M stage, pathological stage and FBXO43.

bModel a included T stage, N stage, pathological stage and FBXO43.