

Table SI. Correlation analysis for OPRPN and SMR3A expression and clinicopathological features (n=96).

| Clinicopathological features | OPRPN ^{high} | SMR3a ^{high} | Others | P-value |
|------------------------------|-----------------------|-----------------------|--------|---------|
| Age, years | | | | 0.118 |
| <58 | 8 | 34 | | |
| ≥58 | 18 | 36 | | |
| Sex | | | | 0.62 |
| Male | 18 | 52 | | |
| Female | 8 | 18 | | |
| TNM status | | | | 0.427 |
| T1/T2 | 11 | 36 | | |
| T3/T4 | 15 | 34 | | |
| N0 | 5 | 9 | | 0.432 |
| N+ | 21 | 61 | | |
| Stage | | | | 0.577 |
| I/II/III | 7 | 23 | | |
| IV | 19 | 47 | | |
| Grade | | | | 0.305 |
| G1/G2 | 15 | 36 | | |
| G3 | 8 | 32 | | |
| missing | 3 | 2 | | |
| Tobacco | | | | 0.079 |
| Never/former | 4 | 25 | | |
| Current | 22 | 45 | | |
| Alcohol | | | | 0.601 |
| Never/former | 5 | 17 | | |
| Current | 21 | 53 | | |
| HPV | | | | 0.17 |
| HPV- | 23 | 51 | | |
| HPV+ | 3 | 19 | | |

SMR3A, submaxillary gland androgen-regulated protein 3A.

Table SII. Multivariate Cox regression analysis for DSS and PFS (n=96).

| Factors | DSS | | PFS | |
|---------------------------------|----------------------|---------|----------------------|---------|
| | HR (95% CI) | P-value | HR (95% CI) | P-value |
| Age, years | | | | |
| >58 vs. <58 | 1.000 (0.536-1.866) | 0.999 | 1.107 (0.603-2.033) | 0.743 |
| Sex | | | | |
| male vs. female | 1.251 (0.579-2.701) | 0.569 | 1.187 (0.569-2.475) | 0.648 |
| Stage | | | | |
| IV vs. I/II/III | | | | |
| pathological grade | | | | |
| G3 vs. G1-2 | 1.158 (0.613-2.189) | 0.651 | 1.245 (0.677-2.291) | 0.480 |
| Tobacco | | | | |
| Current vs. Never/former | 1.688 (0.822-3.467) | 0.154 | 1.703 (0.831-3.488) | 0.146 |
| Alcohol | | | | |
| Current vs. Never/former | 1.131(0.530-2.416) | 0.750 | 1.120 (0.533-2.350) | 0.765 |
| HPV status | | | | |
| Driven vs. Non-driven | 0.539 (0.200-1.457) | 0.223 | 0.388 (0.145-1.038) | 0.059 |
| OPRPN low SMR3A high vs. others | 9.586 (2.424-37.901) | 0.001 | 9.270 (2.384-36.050) | 0.001 |

DSS, disease-free survival; PFS, progression-free survival; HR, hazard ratio; CI, confidence interval; SMR3A, submaxillary gland androgen-regulated protein 3A.