

Table S1 Recurrence free survival multivariable cox proportional hazards model for galectin-1

| Variable | Cox univariate, hazard ratio (95% CI) | Cox univariate, P value | Cox multivariate, hazard ratio (95% CI) | Cox multivariate P value (n=233) |
|--|--|----------------------------|--|-------------------------------------|
| Sex | | 0.0604 | | 0.0218 |
| Female | – | | – | |
| Male | 0.68 (0.45, 1.02) | | 0.57 (0.36, 0.91) | |
| Race | | 0.8229 | | 0.6597 |
| Black | – | | – | |
| Other | 1.45 (0.31, 6.82) | | 1.91 (0.37, 9.91) | |
| White | 1.23 (0.60, 2.52) | | 1.33 (0.63, 2.81) | |
| pT | | <0.0001 | | 0.0010 |
| T2, T3, or T4 | 2.69 (1.79, 4.05) | | 2.13 (1.33, 3.40) | |
| Ta, Tis, or T1 | – | | – | |
| pN | | <0.0001 | | 0.0495 |
| N0 | – | | – | |
| N1 or N2 | 2.77 (1.95, 3.93) | | 1.645 (1.009, 2.682) | |
| ASA class | | 0.1260 | | 0.2281 |
| 1 or 2 | 0.517 (0.266, 1.004) | | 0.54 (0.25, 1.14) | |
| 3 | 0.68 (0.37, 1.24) | | 0.71 (0.37, 1.37) | |
| 4 | – | | – | |
| Tis Path | | 0.2268 | | 0.1565 |
| No | – | | – | |
| Yes | 0.82 (0.59, 1.13) | | 1.33 (0.90, 1.96) | |
| Micro margins | | <0.0001 | | 0.0073 |
| Negative | – | | – | |
| Positive | 3.66 (2.33, 5.73) | | 2.17 (1.26, 3.72) | |
| CCI score age adjusted | | 0.0019 | | 0.3263 |
| 0 ≤ CCI ≤ 2 | 0.48 (0.32, 0.73) | | 0.70 (0.43, 1.13) | |
| 2 < CCI < 5 | 0.676 (0.455, 1.006) | | 0.77 (0.49, 1.21) | |
| CCI ≥ 5 | – | | – | |
| PCV preop | 0.95 (0.92, 0.98) | 0.0008 | 0.9628 (0.9282, 0.9986) | 0.0448 |
| Number of nodes | 1.00 (0.97, 1.02) | 0.8250 | 0.99 (0.96, 1.02) | 0.4778 |
| Positive nodes | 1.17 (1.11, 1.24) | <0.0001 | 1.085 (0.996, 1.181) | 0.0896 |
| Tumor size (cm) | 1.14 (1.08, 1.20) | <0.0001 | 1.05 (0.97, 1.14) | 0.2036 |
| Galectin-1 H-score (for 25 units increase) | 1.01 (0.97, 1.04) | 0.7489 | 1.02 (0.98, 1.06) | 0.4190 |

Ta, noninvasive papillary carcinoma; Tis, carcinoma in situ; T1, tumor invades lamina propria; T2a, tumor invades superficial muscularis propria; T2b, tumor invades deep muscularis propria; T3a, tumor invades perivesical tissue microscopically; T3b, tumor invades perivesical tissue macroscopically; T4a, extravesical tumor invades prostatic stroma, seminal vesicles, uterus, vagina; T4b, extravesical tumor invades pelvic wall, abdominal wall; N0, no lymph node metastasis; N1, single regional lymph node metastasis in the true pelvis; N2, multiple regional lymph node metastasis in the true pelvis; Cis, Carcinoma in situ; ASA, American Society of Anesthesiologists; BMI, body mass index; PCV, packed cell volume; CCI, Charlson Comorbidity Index.

Table S2 Recurrence free survival multivariable cox proportional hazards model for galectin-3

| Variable | Cox univariate, hazard ratio (95% CI) | Cox univariate, P value | Cox multivariate, hazard ratio (95% CI) | Cox multivariate, P value (n=232) |
|--|--|----------------------------|--|--------------------------------------|
| Sex | | 0.0266 | | 0.0134 |
| Female | – | | – | |
| Male | 0.63 (0.42, 0.95) | | 0.54 (0.34, 0.86) | |
| Race | | 0.9383 | | 0.8279 |
| Black | – | | – | |
| Other | 1.30 (0.28, 6.13) | | 1.48 (0.28, 7.72) | |
| White | 1.10 (0.54, 2.25) | | 1.23 (0.59, 2.59) | |
| pT | | <0.0001 | | 0.0043 |
| T2, T3, or T4 | 2.51 (1.66, 3.80) | | 1.93 (1.21, 3.10) | |
| Ta, Tis, or T1 | – | | – | |
| pN | | <0.0001 | | 0.1582 |
| N0 | – | | – | |
| N1 or N2 | 2.63 (1.85, 3.74) | | 1.46 (0.87, 2.45) | |
| ASA class | | 0.1972 | | 0.3104 |
| 1 or 2 | 0.57 (0.29, 1.12) | | 0.62 (0.28, 1.34) | |
| 3 | 0.74 (0.40, 1.38) | | 0.82 (0.41, 1.67) | |
| 4 | – | | – | |
| Tis Path | | 0.1571 | | 0.2225 |
| No | – | | – | |
| Yes | 0.79 (0.57, 1.10) | | 1.27 (0.87, 1.86) | |
| Micro Margins | | <0.0001 | | 0.0171 |
| Negative | – | | – | |
| Positive | 3.31 (2.06, 5.33) | | 2.11 (1.17, 3.80) | |
| CCI Score Age Adjusted | | 0.0017 | | 0.2564 |
| 0 ≤ CCI ≤ 2 | 0.48 (0.32, 0.73) | | 0.68 (0.42, 1.09) | |
| 2 < CCI < 5 | 0.62 (0.42, 0.93) | | 0.74 (0.47, 1.16) | |
| CCI ≥ 5 | – | | – | |
| PCV preop | 0.95 (0.92, 0.98) | 0.0007 | 0.962 (0.928, 0.998) | 0.0429 |
| Number of Nodes | 1.00 (0.97, 1.02) | 0.7202 | 0.987 (0.960, 1.013) | 0.3152 |
| Positive Nodes | 1.18 (1.11, 1.25) | <0.0001 | 1.119 (1.003, 1.249) | 0.0700 |
| Tumor size (cm) | 1.14 (1.09, 1.20) | <0.0001 | 1.07 (0.98, 1.16) | 0.1360 |
| Galectin-3 H-score (for 25 units increase) | 1.01 (0.98, 1.05) | 0.4131 | 1.01 (0.97, 1.05) | 0.6535 |

Ta, noninvasive papillary carcinoma; Tis, carcinoma in situ; T1, tumor invades lamina propria; T2a, tumor invades superficial muscularis propria; T2b, tumor invades deep muscularis propria; T3a, tumor invades perivesical tissue microscopically; T3b, tumor invades perivesical tissue macroscopically; T4a, extravesical tumor invades prostatic stroma, seminal vesicles, uterus, vagina; T4b, extravesical tumor invades pelvic wall, abdominal wall; N0, no lymph node metastasis; N1, single regional lymph node metastasis in the true pelvis; N2, multiple regional lymph node metastasis in the true pelvis; Cis, carcinoma in situ; ASA, American Society of Anesthesiologists; BMI, body mass index; PCV, packed cell volume; CCI, Charlson Comorbidity Index.

Table S3 Muscle invasive cohort (N=215)

| Galectin variable | OS univariate | | RFS univariate | |
|-----------------------------------|-----------------------|------|-----------------------|------|
| | Hazard ratio (95% CI) | P | Hazard ratio (95% CI) | P |
| Gal-1 (N=75*) (25 units increase) | 1.02 (0.94, 1.11) | 0.69 | 1.02 (0.94, 1.11) | 0.67 |
| Gal-3 (N=76*) (25 units increase) | 0.96 (0.89, 1.04) | 0.27 | 0.95 (0.88, 1.03) | 0.20 |

*, Subjects with at least one 'invasive' tissue that is measurable. OS, overall survival; RFS, recurrence free survival.

Table S4 Non-muscle invasive cohort (N=86)

| Galectin variable | OS univariate | | RFS Univariate | |
|-----------------------------------|-----------------------|------|-----------------------|------|
| | Hazard ratio (95% CI) | P | Hazard ratio (95% CI) | P |
| Gal-1 (N=36*) (25 units increase) | 1.06 (0.94, 1.18) | 0.36 | 1.07 (0.96, 1.20) | 0.21 |
| Gal-3 (N=35*) (25 units increase) | 1.01 (0.86, 1.18) | 0.94 | 0.96 (0.82, 1.12) | 0.63 |

*, Subjects with at least one 'invasive' tissue that is measurable. Abbreviations: OS, overall survival; RFS, recurrence free survival.

Table S5 Within T1 subjects (N=41)

| Galectin variable | OS univariate | | RFS univariate | |
|-----------------------------------|-----------------------|------|-----------------------|------|
| | Hazard ratio (95% CI) | P | Hazard ratio (95% CI) | P |
| Gal-1 (N=38*) (25 units increase) | 1.01 (0.91, 1.12) | 0.90 | 1.04 (0.94, 1.14) | 0.44 |
| Gal-3 (N=36*) (25 units increase) | 1.11 (0.98, 1.26) | 0.10 | 1.10 (0.98, 1.23) | 0.12 |

*, Subjects that have a galectin H score. OS, overall survival; RFS, recurrence free survival.