**Supplementary Figure Legend**

**Supplementary Figure 1.** (A–C) Kaplan-Meier (KM) survival curves of tubular adenocarcinoma (AC) and signet ring cell carcinoma (SRC) are shown for (A) relapse-free survival (RFS) of all stages, (B) RFS of early gastric cancer (EGC), and (C) RFS of advanced gastric cancer (AGC). (D) KM curves comparing the RFS of patients with well differentiated (WD), moderately differentiated (MD), and poorly differentiated (PD) tubular adenocarcinoma and SRC for all stages. (E–I) RFS KM curves comparing those of patients with well-to-moderately differentiated (WMD) and poorly differentiated (PD) tubular adenocarcinoma and SRC at (E) EGC, (F) AGC, (G) American Joint Committee on Cancer, 7th edition (AJCC) stage I, (H) AJCC stage II, and (I) AJCC stage III.

Supplementary Table 1. Unadjusted Factors Associated with Relapse-free Survival and Overall Survival

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | RFS |  | OS |
| HR | 95% CI | *P* |  | HR | 95% CI | *P* |
| WHO Histology & Grade |  |  |  |  |  |  |  |
| PD (vs. WMD) | 2.19 | 1.94 to 2.48 | < 0.001 |  | 1.78 | 1.60 to 1.98 | < 0.001 |
| SRC (vs. WMD) | 1.07 | 0.91 to 1.26 | 0.425 |  | 0.91  | 0.79 to 1.06 | 0.218 |
|  SRC (vs. non-SRC) | 0.72 | 0.62 to 0.83 | < 0.001 |  | 0.69 | 0.61 to 0.79 | < 0.001 |
|  Lauren’s Classification |  |  |  |  |  |  |  |
|  Diffuse (vs. intestinal) | 1.68 | 1.47 to 1.93 | < 0.001 |  | 1.42 | 1.25 to 1.60 | < 0.001 |
|  Mixed (vs. intestinal) | 1.47 | 1.11 to 1.93 | 0.006 |  | 1.17 | 0.91 to 1.51 | 0.218 |
| Age at diagnosis | 1.01 | 1.00 to 1.01 | 0.023 |  | 1.03  | 1.03 to 1.04 | < 0.001 |
| Female sex | 1.00 | 0.89 to 1.12 | 0.991 |  | 0.88  | 0.79 to 0.97 |  0.013 |
| AJCC Stage  |  |  |  |  |  |  |  |
|  1B | 3.24 | 2.27 to 4.62 | < 0.001 |  | 1.87 | 1.47 to 2.39 | < 0.001 |
|  2A | 5.30 | 3.77 to 7.46 | < 0.001 |  | 2.59 | 2.02 to 3.33 | < 0.001 |
|  2B | 13.70 | 10.42 to 18.01 | < 0.001 |  | 5.06 | 4.16 to 6.16 | < 0.001 |
|  3A | 17.79 | 13.51 to 23.44 | < 0.001 |  | 6.44 | 5.27 to 7.86 | < 0.001 |
|  3B | 33.08 | 25.62 to 42.70 | < 0.001 |  | 11.15 | 9.36 to 13.29 | < 0.001 |
|  3C | 62.94 | 49.42 to 80.16 | < 0.001 |  | 22.40 | 19.19 to 26.14 | < 0.001 |
|  Tumor stage |  |  |  |  |  |  |  |
|  T1b | 2.00 | 1.38 to 2.89 | < 0.001 |  | 1.61 | 1.27 to 2.04 | < 0.001 |
|  T2 | 6.02 | 4.24 to 8.55 | < 0.001 |  | 3.24 | 2.55 to 4.12 | < 0.001 |
|  T3 | 13.79 | 9.99 to 19.06 | < 0.001 |  | 6.25 | 5.02 to 7.79 | < 0.001 |
|  T4a | 34.83 | 25.80 to 47.04 | < 0.001 |  | 13.94 | 11.51 to 16.88 | < 0.001 |
|  T4b | 85.20 | 54.32 to 133.63 | < 0.001 |  | 27.98 | 19.19 to 40.81 | < 0.001 |
|  Node stage |  |  |  |  |  |  |  |
|  N1 | 5.19 | 4.25 to 6.35 | < 0.001 |  | 2.83 | 2.40 to 3.35 | < 0.001 |
|  N2 | 9.63 | 8.01 to 11.58 | < 0.001 |  | 4.72 | 4.05 to 5.51 | < 0.001 |
|  N3a | 19.51 | 16.41 to 23.19 | < 0.001 |  | 10.02 | 8.72 to 11.51 | < 0.001 |
|  N3b | 36.83 | 30.71 to 44.16 | < 0.001 |  | 20.53 | 17.75 to 23.75 | < 0.001 |
| Location |  |  |  |  |  |  |  |
|  Middle | 0.76 | 0.64 to 0.91 | 0.002 |  | 0.78 | 0.67 to 0.91 | 0.002 |
|  Lower | 0.79 | 0.67 to 0.93 | 0.004 |  | 0.78 | 0.68 to 0.91 | 0.001 |
|  Whole | 4.23 | 2.17 to 8.26 | < 0.001 |  | 6.91 | 4.03 to 11.86 | < 0.001 |

Abbreviation: WMD, well-to-moderately differentiated; PD, poorly differentiated; SRC, signet ring cell carcinoma; HR, hazard ratio

\* 5453 of 7667 patients with available data were analyzed according to Lauren’s classification.

Supplementary Table 2. Multiple Variable Model Predicting Risk of Recurrence and Mortality

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | RFS |  | OS |
| HR | 95% CI | *p* |  | HR | 95% CI | *p* |
|  | EGC |
| Age | 1.02 | 1.00 to 1.04 | 0.040 |  | 1.08 | 1.07 to 1.09 | < 0.001 |
| Female  | 0.63 | 0.41 to 0.96 | 0.033 |  | 0.53 | 0.39 to 0.71 | < 0.001 |
|  Submucosal invasion | 1.03 | 0.68 to 1.56 | 0.900 |  | 1.15 | 0.89 to 1.48 | 0.294 |
|  LN metastasis | 5.83 | 3.87 to 8.77 | < 0.001 |  | 2.22 | 1.61 to 3.05 | < 0.001 |
| SRC (vs. non-SRC) | 0.40  | 0.21 to 0.76 | 0.005 |  | 0.66  | 0.45 to 0.99 | 0.043 |
|  | AGC |
| Age | 1.00 | 1.00 to 1.01 | 0.252 |  | 1.02 | 1.02 to 1.03 | < 0.001 |
|  Female | 1.11 | 0.98 to 1.25 | 0.103 |  | 1.07 | 0.95 to 1.20 | 0.270 |
| AJCC Stage  |  |  |  |  |  |  |  |
| Stage II (vs. Stage I) | 3.71 | 2.50 to 5.52 | < 0.001 |  | 2.17 | 1.64 to 2.87 | < 0.001 |
| Stage III (vs. Stage I) | 14.17  | 9.73 to 20.64 | < 0.001 |  | 7.14 | 5.51 to 9.25 | < 0.001 |
| SRC (vs. non-SRC) | 1.11 | 0.96 to 1.30 |  0.170 |  | 1.26 | 1.09 to 1.46 | 0.002 |

Abbreviation: AGC, advanced gastric cancer; EGC, early gastric cancer; HR, hazard ratio; LN, lymph node; PD, poorly differentiated; SRC, signet ring cell carcinoma; WMD, well-to-moderately differentiated