

Supplementary Table 2. Relationships between tumor-associated N1, N2 and N1/N2 ratio and clinicopathological characteristics in the validation cohort.

| Variables | Low N1 (n=12) | High N1 (n=17) | P value | Low N2 (n=19) | High N2 (n=10) | P value | Low N1/N2 (n=14) | High N1/N2 (n=15) | P value |
|----------------------------|--------------------------|---------------------------|----------------|--------------------------|---------------------------|----------------|-----------------------------|------------------------------|----------------|
| Gender | | | 0.595 | | | 0.937 | | | 0.917 |
| Male/ Female | 8/4 | 14/3 | | 15/4 | 7/3 | | 10/4 | 12/3 | |
| Age (years) | | | 0.774 | | | 0.424 | | | 0.588 |
| <65/ ≥ 65 | 7/5 | 9/8 | | 12/7 | 4/6 | | 7/7 | 9/6 | |
| Primary site | | | 0.774 | | | 1.000 | | | 0.837 |
| Head/ Body or tail | 5/7 | 8/9 | | 9/10 | 4/6 | | 6/8 | 7/8 | |
| Differentiation | | | 0.506 | | | 0.122 | | | 0.341 |
| I/ II/ III | 2/3/7 | 1/7/9 | | 3/8/8 | 0/2/8 | | 2/3/9 | 1/7/7 | |
| T stage | | | 0.727 | | | 1.000 | | | 0.445 |
| T1+T2/ T3+T4 | 10/2 | 12/5 | | 14/5 | 8/2 | | 12/2 | 10/5 | |
| N stage | | | 0.176 | | | 0.798 | | | 0.573 |
| N0/N1-2 | 4/8 | 10/7 | | 10/9 | 4/6 | | 6/8 | 8/7 | |
| TNM stage | | | 0.865 | | | 0.897 | | | 0.574 |
| I/ II/ III | 4/6/2 | 6/7/4 | | 6/9/4 | 4/4/2 | | 6/6/2 | 4/7/4 | |
| Perineural invasion | | | 1.000 | | | 0.583 | | | 1.000 |
| No / Yes | 2/10 | 4/13 | | 5/14 | 1/9 | | 3/11 | 1/12 | |
| CA19-9 | | | 0.968 | | | 0.298 | | | 0.316 |
| < 37/≥37 U/L | 4/8 | 7/10 | | 9/10 | 2/8 | | 4/10 | 7/8 | |
| CEA | | | 1.000 | | | 0.937 | | | 0.917 |
| < 5/ ≥ 5 ng/mL | 9/3 | 13/4 | | 15/4 | 7/3 | | 10/4 | 12/3 | |
| TBIL | | | 1.000 | | | 0.937 | | | 0.917 |
| ≤ 20.4/>20.4 μmol/L | 9/3 | 13/4 | | 15/4 | 7/3 | | 10/4 | 12/3 | |

| | | | | | | | | | |
|---|------|------|--------------|------|-----|--------------|------|------|------------------|
| Albumin | | | 0.570 | | | 0.817 | | | 1.000 |
| < 35/ ≥ 35 g/L | 1/11 | 4/13 | | 4/15 | 1/9 | | 2/12 | 3/12 | |
| ALT | | | 0.968 | | | 0.813 | | | 0.812 |
| ≤ 35/ > 35 U/L | 8/4 | 10/7 | | 11/8 | 7/3 | | 9/5 | 9/6 | |
| AST | | | 0.873 | | | 1.000 | | | 0.596 |
| ≤ 40/ > 40 U/L | 8/4 | 13/4 | | 14/5 | 7/3 | | 9/5 | 12/3 | |
| GGT | | | 0.873 | | | 1.000 | | | 0.596 |
| ≤ 60/ > 60 U/L | 8/4 | 13/4 | | 14/5 | 7/3 | | 9/5 | 12/3 | |
| Glucose | | | 0.219 | | | 0.424 | | | 0.042 |
| ≤ 5.6/ >5.6 mmol/L | 7/5 | 6/11 | | 7/12 | 6/4 | | 9/5 | 4/11 | |
| Tumor-associated N1 neutrophils | | | / | | | 0.008 | | | <0.001 |
| Low/ High | / | / | | 4/15 | 8/2 | | 12/2 | 0/15 | |
| Tumor-associated N2 neutrophils | | | 0.008 | | | / | | | <0.001 |
| Low/ High | 4/8 | 15/2 | | / | / | | 4/10 | 15/0 | |
| Tumor-infiltrating CD8⁺ T cells | | | 0.010 | | | 0.019 | | | 0.001 |
| Low/ High | 10/2 | 6/11 | | 7/12 | 9/1 | | 12/2 | 4/11 | |
| Tumor-infiltrating Tregs | | | 0.071 | | | 0.119 | | | 0.089 |
| Low/ High | 3/9 | 10/7 | | 11/8 | 2/8 | | 4/10 | 9/6 | |