**Supplementary Table 5.** Clinical characteristics of patients who underwent single-cell RNA sequencing

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| --- | --- | --- | --- | --- | --- | --- |
| **Patient** | **Group** | **Gender** | **Age** | **Tumor size(cm)** | **TNM &****AJCC 8 stage** | **Vascular or Perineural invasion** |
| Patient1 | LNN | Male | 54 | 2.5×2.3×1.7 | T4N0M0 III | + |
| Patient2 | LNP | Female | 58 | 2.5×2×2 | T2N1M0 IIB | + |
| Patient3 | LNP | Female | 59 | 2×1.8×1.5 | T1cN2M0 III | + |
| Patient4 | LNP | Female | 71 | 1.5×1.3×1 | T1aN1M0 IIB | + |
| Patient5 | LNN | Male | 67 | 3.3×3×2.8 | T2N0M0 IB | - |
| Patient6 | LNN | Male | 63 | 2.8×2.3×1.3 | T2N0M0 IB | + |
| Patient7 | HM | Male | 65 | 3.9×3.0 | T2N\*M1 IV | + |

LNN, lymph node-negative; LNP, lymph node-positive; HM, hepatic metastasis.