**Table S1**

|  |  |
| --- | --- |
| **Characteristics (retrospective cohort)** | **Number (%)** |
| **Gender** |  |
| male  female | 419 (78%)  119 (22%) |
| **Age** |  |
| mean (year) ± SEM  range | 63 ± 11  19-84 |
| **Smoking history** |  |
| past/current  never smokers | 476 (88%)  47 (9%) |
| ND | 15 (3%) |
| pack-year ± SEM  range | 42 ± 24  0-150 |
| **Histological subtype** |  |
| Adenocarcinoma | 365 (68%) |
| Squamous cell carcinoma | 141 (26%) |
| Others | 32 (6%) |
| **pTNM stage** |  |
| I | 238 (44%) |
| II | 146 (27%) |
| III+IV | 154 (29%) |
| **Vital status of patients** |  |
| Alive | 226 (42%) |
| Dead | 312 (58%) |

**Table S2**

|  |  |
| --- | --- |
| **Characteristics (prospective cohort)** | **Number (%)** |
| **Gender** |  |
| male  female | 30 (54%)  26 (46%) |
| **Age** |  |
| mean (year) ± SEM  range | 68 ± 8  52-88 |
| **Smoking history** |  |
| past/current  never smoker | 40 (72%)  8 (14%) |
| ND | 8 (14%) |
| pack-year ± SEM  range | 34 ± 22  0-80 |
| **Histological subtype** |  |
| Adenocarcinoma | 27 (48%) |
| Squamous cell carcinoma | 27 (48%) |
| Others | 2 (4%) |
| **pTNM stage** |  |
| I | 20 (36%) |
| II | 18 (32%) |
| III | 18 (32%) |

**Table S3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **IHC** | **Conjugate** | **Host** | **Clone or reference** | **Source** | **Antigen retrieval** |
| Antibodies: |  |  |  |  |  |
| APAAP | AP | Mouse IgG1 | D0651 | Dako-Agilent | NA |
| CD20 | UC | Mouse IgG2a | L26 | Dako-Agilent | pH 6.0 |
| CD21 | UC | Mouse IgG1 | 1F8 | Dako-Agilent | pH 6.0 |
| CD3 | UC | Rabbit IgG | A0452 | Dako-Agilent | TRS |
| FoxP3 | UC | Mouse IgG1 | 236A/E7 | Abcam | TRS |
| Mouse IgG | AP | Goat F(ab')2 | 115-056-062 | Jackson ImmunoResearch | NA |
| Mouse IgG1 | UC | Sheep Ig | AU273 | Binding Site | NA |
| Mouse IgG2a | Biotin | Goat IgG | 115-065-206 | Jackson ImmunoResearch | NA |
| Pan-cytokeratins | UC | Mouse IgG1 | AE1-AE3 | Dako-Agilent | pH 8.0 |
| Reagents: |  |  |  |  |  |
| AEC | NA | NA | SK-4200 | Vector Laboratories | NA |
| DAPI | NA | NA | D3571 | Life Technologies | NA |
| Hematoxylin | NA | NA | 1.09249.2500 | Merck | NA |
| SAP | NA | NA | SK-5300 | Vector | NA |
| Streptavidin | HRP | NA | P039701 | Dako-Agilent | NA |

**Table S4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Flow cytometry** | **Conjugate** | **Host** | **Clone or reference** | **Source** |
| Antibodies: |  |  |  |  |
| 4-1BB | BV421 | Mouse IgG1 | 4B4-1 | BioLegend |
| 4-1BBL | PE | Mouse IgG1 | C65-485 | BD Biosciences |
| BTLA | PE | Mouse IgG1 | J168-540 | BD Biosciences |
| CCR7 | PE-Cy7 | Mouse IgG2a | G043H7 | BioLegend |
| CD3 | AF700 | Mouse IgG1 | UCHT1 | BD Biosciences |
| CD3 | PerCP | Mouse IgG1 | UCHT1 | BioLegend |
| CD4 | AF700 | Mouse IgG1 | RPA-T4 | BD Biosciences |
| CD4 | BV605 | Mouse IgG2b | OKT4 | BioLegend |
| CD8 | APC-H7 | Mouse IgG1 | SK1 | BD Biosciences |
| CD8 | BV650 | Mouse IgG1 | RPA-T8 | BioLegend |
| CD19 | ECD | Mouse IgG1 | J3.119 | Beckman Coulter |
| CD24 | BV650 | Mouse IgG2a | ML5 | BD Biosciences |
| CD25 | BV421 | Mouse IgG1 | M-A251 | BD Biosciences |
| CD27 | BV650 | Mouse IgG1 | O323 | BioLegend |
| CD38 | PerCP-eF710 | Mouse IgG1 | HB7 | eBioscience |
| CD40 | Pe-Cy7 | Mouse IgG1 | 5C3 | BioLegend |
| CD40-L | APC-Cy7 | Mouse IgG1 | 24-31 | BioLegend |
| CD45 | PE | Mouse IgG1 | J.33 | Beckman Coulter |
| CD45RA | ECD | Mouse IgG1 | 2H4 | Beckman Coulter |
| CD69 | AF700 | Mouse IgG1 | FN50 | BD Biosciences |
| CD69 | PE | Mouse IgG1 | FN50 | BD Biosciences |
| CD70 | FITC | Mouse IgG3 | Ki-24 | BD Biosciences |
| CD71 | FITC | Mouse IgG2a | M-A712 | BD Biosciences |
| CD80 | BV605 | Mouse IgG1 | 2D10 | BioLegend |
| CD83 | PE.Cy7 | Mouse IgG1 | HB15e | BD Biosciences |
| CD86 | AF700 | Mouse IgG1 | 2331 | BD Biosciences |
| CD95 | APC | Mouse IgG1 | DX2 | BD Biosciences |
| CD227 | FITC | Mouse IgG1 | HMPV | BD Biosciences |
| CTLA-4 | APC | Mouse IgG1 | L3D10 | BioLegend |
| Epithelial antigen | FITC | Mouse IgG1 | Ber-EP4 | Dako-Agilent |
| FoxP3 | AF700 | Rat IgG2a | PCH101 | eBioscience |
| GITR | AF488 | Mouse IgG1 | AITR | eBioscience |
| GITR-L | APC | Mouse IgG1 | 109101 | R&D |
| HLA-DR | APC-Cy7 | Mouse IgG2a | L243 | BioLegend |
| ICOS | PerCP-eF710 | Mouse IgG1 | ISA3 | eBioscience |
| ICOS-L | FITC | Mouse IgG1 | MIH11 | Clinisciences |
| IgD | BV421 | Mouse IgG2a | IA6-2 | BD Biosciences |
| LAG-3 | FITC | Mouse IgG1 | 17B4 | EnzoLifesciences |
| OX40 | PE | Mouse IgG1 | ACT35 | BD Biosciences |
| OX40-L | PE | Mouse IgG1 | 11c3.1 | BioLegend |
| Pan-cytokeratins | AF488 | Mouse IgG1 | AE1-AE3 | eBioscience |
| PD-1 | APC-Cy7 | Mouse IgG1 | EH12.2H7 | BioLegend |
| Tim-3 | BV421 | Mouse IgG1 | F38-2E2 | BioLegend |
| TIGIT | PerCP-eF710 | Mouse IgG1 | MBSA43 | eBioscience |
| Reagent: |  |  |  |  |
| Viability marker | NA | NA | L34959 | Invitrogen |