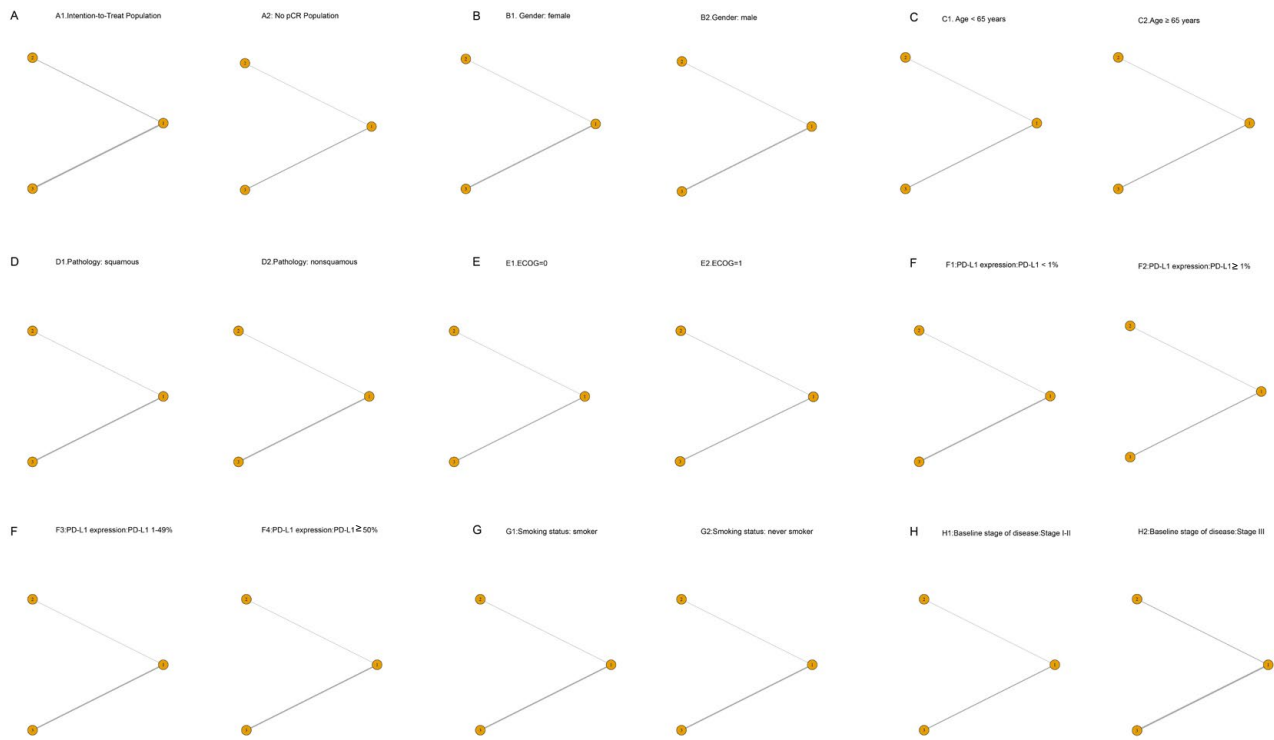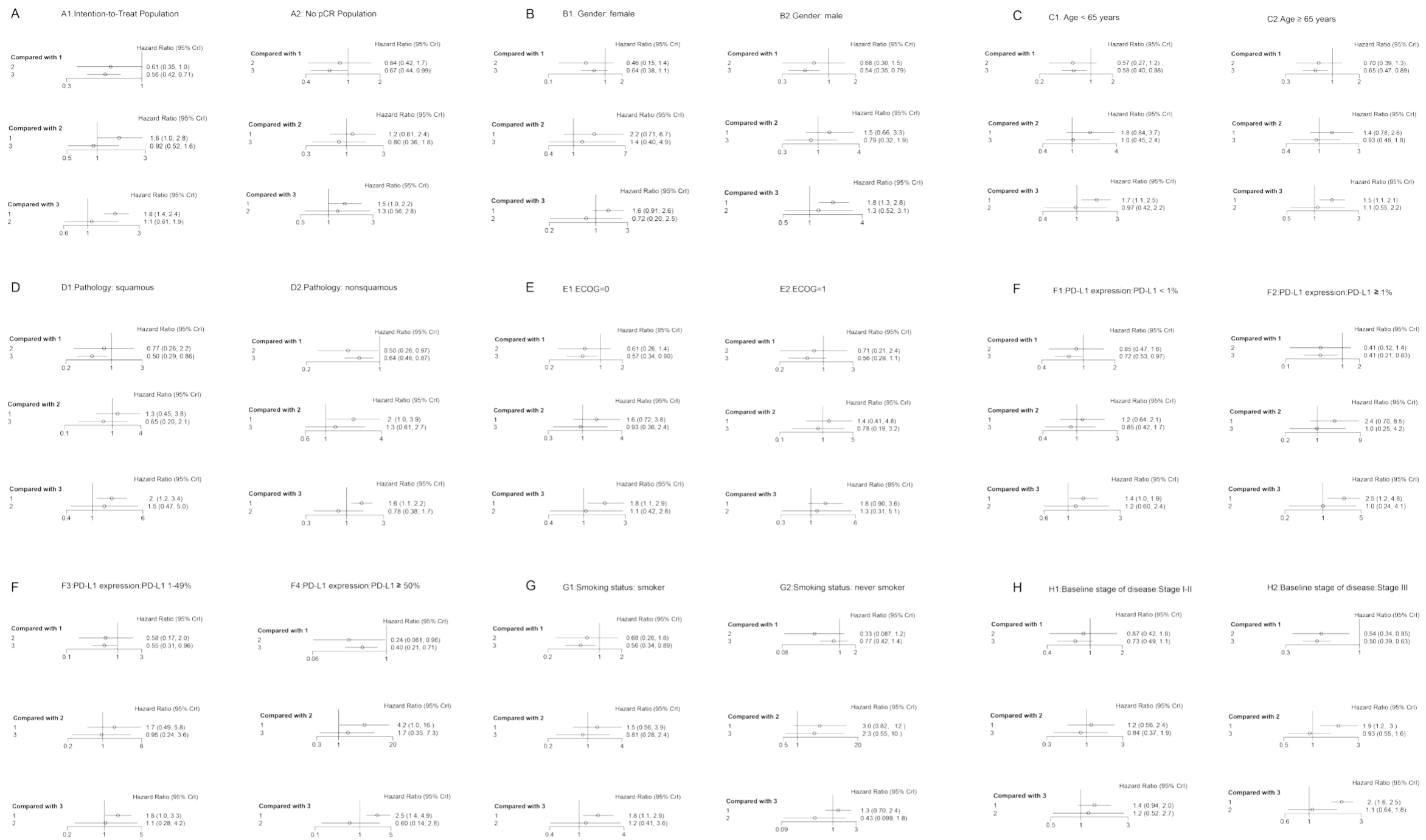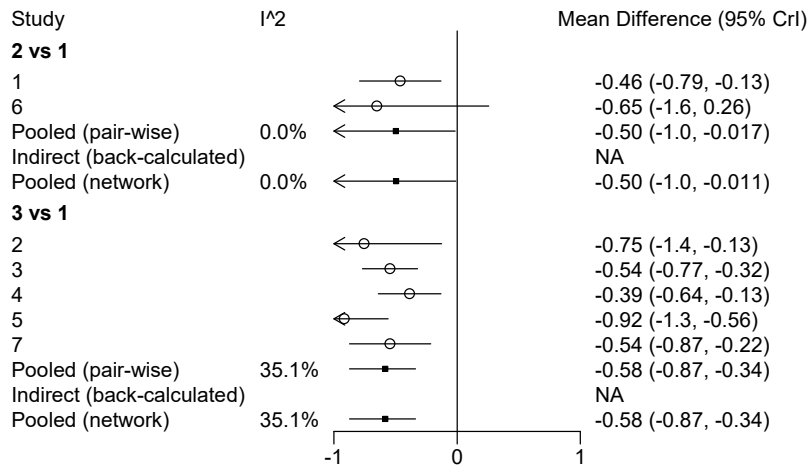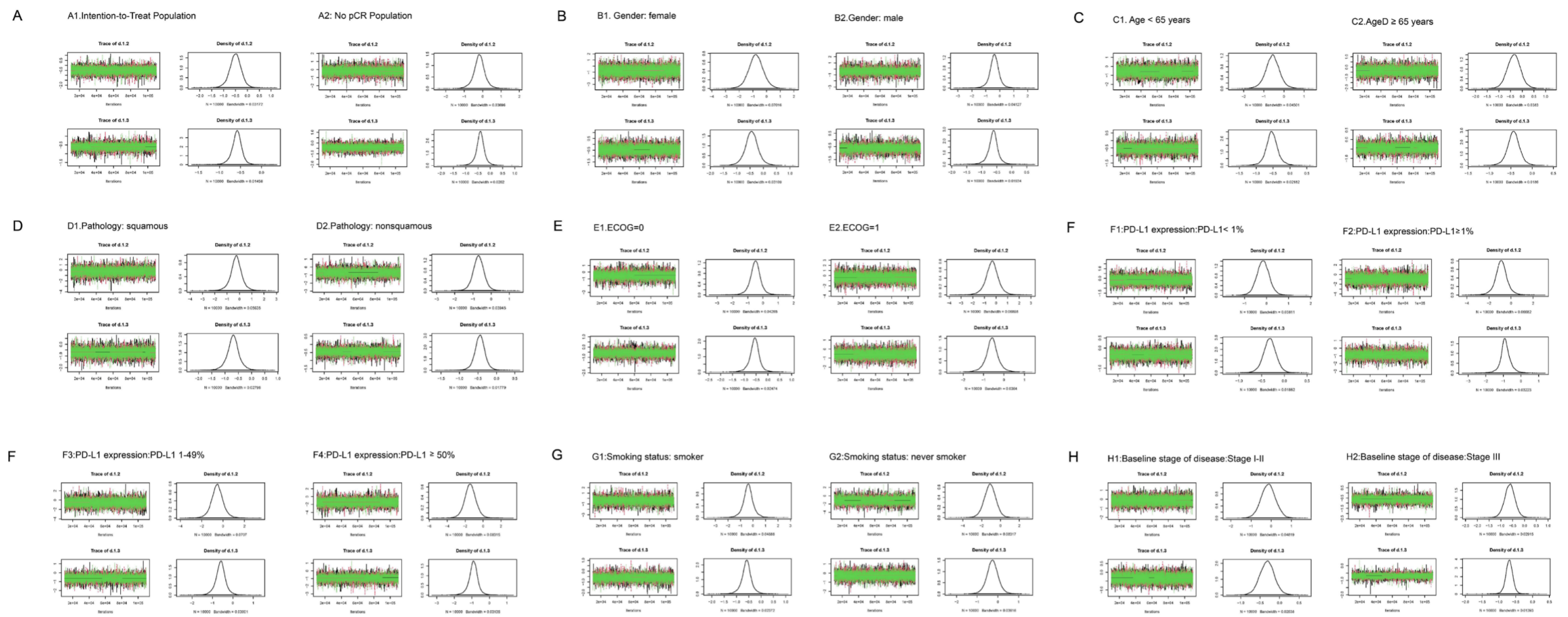**Figure S1** Network maps according to (A) population, (B) gender, (C) age, (D) pathology, (E) ECOG, (F) PD-L1 expression, (G) smoking status, (H) baseline stage of disease. Each circular node represents a treatment model; the node size is proportional to the total number of participants who received that treatment. Each line depicts a type of head-to-head comparison and the line width is proportional to the number of studies comparisons. Lung cancer was staged using the eighth version of AJCC TNM staging system. 1, arm A, neoadjuvant chemotherapy alone; 2, Arm B, neoadjuvant immunotherapy plus chemotherapy alone; 3, Arm C, perioperative immunotherapy; pCR, pathologic complete response; ECOG, Eastern Cooperative Oncology Group; PD-L1, programmed death ligand 1; AJCC TNM staging system, Tumor-Node-Metastasis staging system of American Joint Committee on Cancer.

**Figure S2** Forest plots according to (A) population, (B) gender, (C) age, (D) pathology, (E) ECOG, (F) PD-L1 expression, (G) smoking status, (H) baseline stage of disease. HRs and 95% CIs were used to compare the results. Lung cancer was staged using the eighth version of AJCC TNM staging system. 1, arm A, neoadjuvant chemotherapy alone; 2, Arm B, neoadjuvant immunotherapy plus chemotherapy alone; 3, Arm C, perioperative immunotherapy; pCR, pathologic complete response; ECOG, Eastern Cooperative Oncology Group; PD-L1, programmed death ligand 1; AJCC TNM staging system, Tumor-Node-Metastasis staging system of American Joint Committee on Cancer; HR, hazard ratio; CI, confidence interval.

| Study | I^2 | | Mean Difference (95% CrI) |
|---|---|---|---|
| **2 vs 1** | | | |
| 1 | | | -0.46 (-0.79, -0.13) |
| 6 | | | -0.65 (-1.6, 0.26) |
| Pooled (pair-wise) | 0.0% | | -0.50 (-1.0, -0.017) |
| Indirect (back-calculated) | | | NA |
| Pooled (network) | 0.0% | | -0.50 (-1.0, -0.011) |
| **3 vs 1** | | | |
| 2 | | | -0.75 (-1.4, -0.13) |
| 3 | | | -0.54 (-0.77, -0.32) |
| 4 | | | -0.39 (-0.64, -0.13) |
| 5 | | | -0.92 (-1.3, -0.56) |
| 7 | | | -0.54 (-0.87, -0.22) |
| Pooled (pair-wise) | 35.1% | | -0.58 (-0.87, -0.34) |
| Indirect (back-calculated) | | | NA |
| Pooled (network) | 35.1% | | -0.58 (-0.87, -0.34) |

**Figure S3** Heterogeneity quantification using the $I^2$. $I^2<50\%$ showed no high degree of heterogeneity. The bold numbers represented difference arms. 1, arm A, neoadjuvant chemotherapy alone; 2, Arm B, neoadjuvant immunotherapy plus chemotherapy alone; 3, Arm C, perioperative immunotherapy. The numbers not bolded represented difference trials. 1, Checkmate 816; 2, AEGEAN; 3, KeyNote 671; 4, NADIM II; 5, NEOTORCH;6, TD-Foreknow; 7, CheckMate 77T.

**Figure S4** Convergence of the three Markov chain Monte Carlo (MCMC) chains established by (A) population, (B) gender, (C) age, (D) pathology, (E) ECOG, (F) PD-L1 expression, (G) smoking status, (H) baseline stage of disease. Three independent MCMC chains are generated and running 15,000 sample iterations per chain simultaneously in each Bayesian inference analysis. Lung cancer was staged using the eighth version of AJCC TNM staging system. 1, arm A, neoadjuvant chemotherapy alone; 2, Arm B, neoadjuvant immunotherapy plus chemotherapy alone; 3, Arm C, perioperative immunotherapy; pCR, pathologic complete response; ECOG, Eastern Cooperative Oncology Group; PD-L1, programmed death ligand 1; AJCC TNM staging system, Tumor-Node-Metastasis staging system of American Joint Committee on Cancer.

**Table S1** Additional characteristics of patients in studies included in the network meta-analysis

| Characteristics | Study ID/Arm | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CheckMate816 | | AEGEAN | | KeyNote 671 | | NADIM II | | NEOTORCH | | TD-Foreknow | | CheckMate77T | |
| | A (n=179) | B (n=179) | A (n=374) | C (n=366) | A (n=400) | C (n=397) | A (n=29) | C (n=57) | A (n=202) | C (n=202) | A (n=45) | B (n=43) | A (n=232) | C (n=229) |
| Median age, years | 65 | 64 | 65 | 65 | 64 | 63 | 63 | 65 | 61 | 62 | 61 | 61 | 66 | 66 |
| Gender, No. (%) | | | | | | | | | | | | | | |
| Male | 127 (70.9) | 128 (71.5) | 278 (74.3) | 252 (68.9) | 284 (71.0) | 279 (70.3) | 16 (55.0) | 36 (63.0) | 189 (93.6) | 181 (89.6) | 40 (88.9) | 34 (79.1) | 160 (69.0) | 167 (72.9) |
| ECOG performance-status Score, No. (%) | | | | | | | | | | | | | | |
| 0 | 117 (65.4) | 124 (69.3) | 255 (68.2) | 251 (68.6) | 246 (61.5) | 253 (63.7) | 16 (55.0) | 31 (54.0) | 73 (36.1) | 70 (34.7) | 43 (95.6) | 41 (95.3) | 141 (60.8) | 147 (64.2) |
| 1 | 62 (34.6) | 55 (30.7) | 119 (36.8) | 115 (31.4) | 154 (38.5) | 144 (36.3) | 13 (45.0) | 26 (46.0) | 129 (63.9) | 132 (65.3) | 2 (4.4) | 2 (4.7) | 91 (39.2) | 82 (35.8) |
| Smoking status, No. (%) | | | | | | | | | | | | | | |
| Current smoker | 158 (88.3) | 160 (89.4) | 95 (25.4) | 95 (26.0) | 103 (25.8) | 96 (24.2) | 21 (72.0) | 30 (53.0) | 23 (11.4) | 30 (14.9) | 37 (82.2) | 31 (72.1) | 205 (88.4) | 212 (92.6) |
| Former smoker | | | 223 (59.6) | 220 (60.1) | 250 (62.5) | 247 (62.2) | 8 (28.0) | 22 (39.0) | 158 (78.2) | 144 (71.3) | | | | |
| Never smoked | 20 (11.2) | 19 (10.6) | 56 (15.0) | 51 (13.9) | 47 (11.8) | 54 (13.6) | 0 | 5 (9.0) | 21 (10.4) | 28 (13.9) | 8 (17.8) | 12 (27.9) | 27 (11.6) | 17 (7.4) |
| Pathological stage at baseline, No. (%)* | | | | | | | | | | | | | | |
| IB | 62 (34.6) | 65 (36.3) | NR | NR | NR | NR | NR | NR | NR | NR | 0 | 0 | 0 | 0 |
| II | | | 110 (29.4) | 104 (28.4) | 121 (30.2) | 118 (29.7) | 4 (14.0) | 12 (21.0) | NR | NR | 0 | 0 | 81 (34.9) | 81 (35.4) |
| III | NR | NR | NR | NR | 279 (69.8) | 279 (70.3) | 25 (86.0) | 45 (79.0) | NR | NR | 45 (100) | 43 (100) | 149 (64.2) | 146 (63.8) |
| IIIA | 115 (64.2) | 113 (63.1) | 165 (44.1) | 173 (47.3) | 225 (56.2) | 217 (54.7) | 20 (69.0) | 32 (56.1) | 136 (67.3) | 136 (67.3) | 36 (80.0) | 30 (69.8) | NR | NR |
| IIIB | NR | NR | 98 (26.2) | 88 (24.0) | 54 (13.5) | 62 (15.6) | 5 (17.0) | 13 (23.0) | 64 (31.7) | 64 (31.7) | 9 (20.0) | 13 (30.2) | NR | NR |
| Tumor stage, No. (%)* | | | | | | | | | | | | | | |
| T1 | NR | NR | 43 (11.5) | 44 (12.0) | 62 (15.6) | 55 (13.9) | 4 (14.0) | 12 (21.0) | NR | NR | 4 (8.9) | 2 (4.7) | NR | NR |
| T2 | NR | NR | 108 (28.9) | 97 (26.5) | 126 (31.5) | 106 (26.7) | 7 (24.0) | 16 (28.0) | NR | NR | 18 (40.0) | 19 (44.2) | NR | NR |
| T3 | NR | NR | 129 (34.5) | 128 (35.0) | 109 (27.2) | 121 (30.5) | 6 (20.7) | 15 (26.3) | NR | NR | 13 (28.9) | 16 (37.2) | NR | NR |
| T4 | NR | NR | 94 (25.1) | 97 (26.5) | 104 (26.0) | 115 (29.0) | 12 (41.4) | 14 (24.6) | NR | NR | 10 (22.2) | 6 (14.0) | NR | NR |
| Tumor stage, No. (%)* | | | | | | | | | | | | | | |
| N0 | NR | NR | 102 (27.3) | 110 (30.1) | 142 (35.5) | 148 (37.3) | 9 (31.0) | 6 (10.5) | 18 (8.9) | 17 (8.4) | 5 (11.1) | 5 (11.6) | 87 (37.5) | 80 (34.9) |
| N1 | NR | NR | 87 (23.3) | 75 (20.5) | 71 (17.8) | 81 (20.4) | 4 (13.8) | 10 (17.5) | 39 (19.3) | 46 (22.8) | 9 (20.0) | 4 (9.3) | 52 (22.4) | 56 (24.5) |
| N2 | NR | NR | 185 (49.5) | 181 (49.5) | 187 (46.8) | 168 (42.3) | 16 (55.2) | 41 (71.9) | 145 (71.8) | 138 (68.3) | 31 (68.9) | 34 (79.1) | 91 (39.2) | 91 (39.7) |
| Histologic features, No. (%) | | | | | | | | | | | | | | |
| Nonsquamous | 84 (46.9) | 92 (51.4) | 179 (47.9) | 196 (53.6) | 227 (56.8) | 226 (56.9) | 15 (51.7) | 36 (63.2) | 45 (22.3) | 45 (22.3) | 13 (28.9) | 16 (37.2) | 114 (49.1) | 113 (49.3) |
| Squamous | 95 (53.1) | 87 (48.6) | 191 (51.1) | 169 (46.2) | 173 (43.2) | 171 (43.1) | 14 (48.0) | 21 (37.0) | 157 (77.7) | 157 (77.7) | 32 (71.1) | 27 (62.8) | 118 (50.9) | 116 (50.7) |
| PD-L1 tumor proportion score, No. (%) | | | | | | | | | | | | | | |
| ≥50% | 42 (23.5) | 38 (21.2) | 107 (28.6) | 109 (29.8) | 134 (33.5) | 132 (33.2) | NR | NR | 54 (26.7) | 51 (25.3) | 11 (24.4) | 16 (37.2) | 52 (22.4) | 45 (19.7) |
| 1-49% | 47 (26.3) | 51 (28.5) | 142 (38.0) | 135 (36.9) | 115 (28.8) | 127 (32.0) | NR | NR | 68 (33.7) | 69 (34.2) | | | 76 (32.8) | 83 (36.2) |
| <1% | 77 (43.0) | 78 (43.6) | 125 (33.4) | 122 (33.3) | 151 (37.8) | 138 (34.8) | NR | NR | 64 (31.7) | 64 (31.7) | 8 (17.8) | 7 (16.3) | 93 (40.1) | 93 (40.6) |
| Could not be evaluated | 13 (7.3) | 12 (6.7) | NR | NR | NR | NR | NR | NR | 16 (7.9) | 18 (8.9) | 26 (57.8) | 20 (46.5) | 11 (4.7) | 8 (3.5) |
| EGFR mutation status, No. (%) | | | | | | | | | | | | | | |
| No | 179 (100) | 179 (100) | NR | NR | 127 (31.8) | 111 (28.0) | NR | NR | 202 (100) | 202 (100) | NR | NR | 232 (100) | 229 (100) |
| Yes | 0 | 0 | NR | NR | 19 (4.8) | 14 (3.5) | NR | NR | 0 | 0 | NR | NR | 0 | 0 |
| Unknown | 0 | 0 | NR | NR | 254 (63.5) | 272 (68.5) | NR | NR | 0 | 0 | NR | NR | 0 | 0 |
| ALK translocation status, No. (%) | | | | | | | | | | | | | | |
| No | NR | NR | NR | NR | 133 (33.2) | 104 (26.2) | NR | NR | 202 (100) | 202 (100) | NR | NR | 232 (100) | 229 (100) |
| Yes | NR | NR | NR | NR | 9 (2.2) | 12 (3.0) | NR | NR | 0 | 0 | NR | NR | 0 | 0 |
| Unknown | NR | NR | NR | NR | 258 (64.5) | 281 (70.8) | NR | NR | 0 | 0 | NR | NR | 0 | 0 |
| Resection, No. (%) | | | | | | | | | | | | | | |
| R0 | 105 (77.8) | 124 (83.2) | 262 (91.3) | 269 (94.7) | 267 (84.2) | 299 (92.0) | 17 (85.0) | 50 (94.0) | 137 (92.6) | 159 (95.8) | 36 (85.7) | 37 (92.5) | 161 (90.4) | 159 (89.3) |
| R1 | 21 (15.6) | 16 (10.7) | NR | NR | 31 (9.8) | 17 (5.2) | NR | NR | NR | NR | NR | NR | 11 (6.2) | 17 (9.6) |
| R2 | 4 (3.0) | 5 (3.4) | NR | NR | 5 (1.3) | 5 (1.2) | NR | NR | NR | NR | NR | NR | 6 (3.4) | 2 (1.1) |
| Rx (unknown) | 5 (3.7) | 4 (2.7) | NR | NR | 30 (7.4) | 6 (1.5) | NR | NR | NR | NR | NR | NR | NR | NR |

Arm A: neoadjuvant chemotherapy alone; Arm B: neoadjuvant immunotherapy plus chemotherapy; Arm C: neoadjuvant Neo, neoadjuvant; I, immunotherapy; CT, chemotherapy; Adj, adjuvant. *, according to the American Joint Committee on Cancer Staging System (8th edition). ECOG, Eastern Cooperative Oncology Group; PD-L1, programmed death ligand 1; EGFR, epidermal growth factor receptor; ALK, anaplastic lymphoma kinase; N, number; NR, not report.

**Table S2** pCR and MPR rates in studies included in the network meta-analysis

| Study ID | Arm | Study design | pCR rate (%) | MPR rate (%) |
|---|---|---|---|---|
| CheckMate816 | A | Neo CT | 2.2 | 8.9 |
| | B | Neo I + CT | 24 | 36.9 |
| AEGEAN | A | Neo placebo + CT plus Adj placebo | 4.3 | 12.3 |
| | C | Neo I + CT plus Adj I | 17.2 | 33.3 |
| KeyNote671 | A | Neo placebo + CT plus Adj placebo | 4.0 | 11.0 |
| | C | Neo I + CT plus Adj I | 18.1 | 30.2 |
| NADIM II | A | Neo CT plus follow up | 6.9 | 13.8 |
| | C | Neo I + CT plus Adj I | 36.8 | 52.6 |
| NEOTORCH* | A | Neo placebo + CT plus Adj placebo | 1.0 | 8.4 |
| | C | Neo I + CT plus Adj I | 28.2 | 48.5 |
| TD-Foreknow | A | Neo CT | 8.9 | 15.6 |
| | B | Neo I + CT | 32.6 | 65.1 |
| CheckMate77T | A | Neo placebo + CT plus Adj placebo | 4.7 | 12.1 |
| | C | Neo I + CT plus Adj I | 25.3 | 35.4 |

*, despite there were its own unique features, the NEOTORCH model was divided into neoadjuvant chemotherapy (Arm A) group or perioperative immunotherapy (Arm C) group. Arm A: neoadjuvant chemotherapy alone; Arm B: neoadjuvant immunotherapy plus chemotherapy; Arm C: perioperative immunotherapy. Neo, neoadjuvant; CT, chemotherapy; I, immunotherapy; Adj, adjuvant; pCR, pathological complete response; MPR, major pathological response.