

**Figure S1** Patient enrollment in this study. NSCLC, non-small cell lung cancer; ICIs, immune checkpoint inhibitors; PD-(L)1, program death-(ligand) 1; CTLA-4, cytotoxic T lymphocyte associated protein-4.

**Table S1** Baseline peripheral blood parameters' associated risk of best overall response in the whole population (n=103)

Clinical or biological marker	CR/PR (n=45)	SD (n=49)	PD (n=9)	P value
Age (years)	64 (61, 69)	67 (61, 72)	66 (62, 69)	0.294
BMI (kg/m <sup>2</sup> )	21.8 (20.7, 24.0)	22.7 (20.2, 23.9)	22.9 (20.3, 24.2)	0.947
Blood routine test				
ANC	5.37 (3.74, 7.66)	4.70 (3.55, 5.73)	6.57 (6.08, 7.77)	0.054
ALC	1.34 (1.03, 1.70)	1.32 (1.07, 1.62)	0.95 (0.79, 1.41)	0.363
NLR	3.66 (2.57, 5.40)	3.17 (2.37, 4.82)	5.51(3.54, 10.46)	0.043
NLR <5	29 (64.4%)	37 (75.5%)	3 (33.3%)	0.042
NLR ≥ 5	16 (35.6%)	12 (24.5%)	6 (66.7%)	
AEC	0.14 (0.06, 0.29)	0.09(0.05, 0.24)	0.13 (0.04, 0.20)	0.984
PLR	186 (136, 297)	186 (133, 245)	264 (228, 296)	0.349
PNI	N=44 47.5 (44.4, 50.1)	N=48 46.9 (41.4, 51.8)	N=9 44.9 (44.1, 47.8)	0.391
PNI ≤45	14 (31.8%)	19 (39.6%)	5 (55.6%)	0.378
PNI >45	30 (68.2%)	29 (60.4%)	4 (44.4%)	
Lymphocyte subsets test				
B lymphocyte (/ $\mu$ L)	N=41 131 (77, 200)	N=46 94 (69, 150)	N=9 85 (46, 124)	0.138
NK cell (/ $\mu$ L)	258 (159, 350)	267 (170, 419)	235 (153, 280)	0.684
CD4 <sup>+</sup> lymphocyte (/ $\mu$ L)	565 (243, 736)	442 (352, 606)	463 (263, 583)	0.553
CD8 <sup>+</sup> lymphocyte (/ $\mu$ L)	338 (239, 424)	327 (222, 447)	385 (319, 467)	0.696
LDH	N=32 215 (180, 252)	N=34 225 (185, 244)	N=7 211 (188, 284)	0.632
hsCRP	N=25 10.27 (3.05, 32.53)	N=31 8.56 (1.63, 39.40)	N=6 25.545 (8.59, 98.25)	0.866

**Table S1** (continued)

Table S1 (continued)

Clinical or biological marker	CR/PR (n=45)	SD (n=49)	PD (n=9)	P value
ESR	N=20 25 (11, 51)	N=29 24 (10, 43)	N=6 57.5 (51, 68)	0.079
IL-6	N=45 4.5 (2.3, 13.0)	N=49 4.5 (2.0, 11.3)	N=9 16.6 (2.8, 18.2)	0.685
IL-8	N=42 31 (17, 98)	N=42 23 (16, 44)	N=9 40 (20, 48)	0.066
IL-10	N=41 5 (5, 5)	N=41 5 (5, 5)	N=9 5 (5, 5)	0.605
TNF- $\alpha$	N=31 8.3 (5.7, 10.8)	N=37 8.0 (5.2, 9.7)	N=9 10 (7.4, 18.0)	0.013
ECOG PS				0.022
0-1	45 (100.0%)	45 (91.8%)	7 (77.8%)	
>1	0	4 (8.2%)	2 (22.2%)	
Number of metastatic sites				0.002
<3	39 (86.7%)	38 (77.6%)	3 (33.3%)	
$\geq$ 3	6 (13.3%)	11 (22.4%)	6 (66.7%)	
Line of therapy				0.002
1st	35 (77.8%)	23 (46.9%)	4 (44.4%)	
2nd	9 (20.0%)	14 (28.6%)	1 (11.1%)	
3rd or more	1 (2.2%)	12 (24.5%)	4 (44.4%)	
Treatment received				0.432
Immunotherapy	11 (24.4%)	18 (36.7%)	3 (33.3%)	
Chemoimmunotherapy	34 (75.6%)	31 (63.3%)	6 (66.7%)	

CR, complete response; PR, partial response; SD, stable disease; PD, progressive disease; BMI, body mass index; ANC, absolute neutrophil count; ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; NK, natural killer cell; LDH, lactate dehydrogenase; hsCRP, hyper-sensitive C-reactive protein; ESR, erythrocyte sedimentation rate; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ ; ECOG PS, Eastern Cooperative Oncology Group performance status.

**Table S2** Multivariate analyses of best overall response in the whole population (n=103)

Variable	PR vs. PD			SD vs. PD		
	OR	95% CI	P value	OR	95% CI	P value
NLR	0.946	0.662–1.352	0.759	0.783	0.528–1.162	0.224
AEC	1.064	0.168–6.727	0.948	0.570	0.087–3.721	0.557
PLR	1.003	0.991–1.015	0.673	0.997	0.986–1.009	0.668
PNI	0.992	0.742–1.325	0.955	0.903	0.681–1.197	0.478
IL-6	0.972	0.855–1.104	0.658	1.035	0.925–1.159	0.548
IL-8	1.000	0.982–1.018	0.992	0.993	0.977–1.009	0.385
TNF- $\alpha$	0.983	0.870–1.112	0.789	1.007	0.915–1.108	0.892
Treatment line (>1)	3.034	0.372–24.713	0.300	1.102	0.149–8.178	0.924
ECOG PS (>1)	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	2.475	0.116–52.950	0.562
Number of meta-sites (3 or more)	5.597	0.482–65.017	0.169	3.127	0.361–27.084	0.301

<sup>1</sup>, there is no ECOG >1 patients in PR group. NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; IL-6, interleukin-6; IL-8, interleukin-8; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ ; ECOG PS, Eastern Cooperative Oncology Group performance status.

**Table S3** Baseline peripheral blood parameters' associated risk of best overall response in patients receiving anti-PD-1/PD-L1 monotherapy or anti-PD-1/PD-L1 plus anti CTLA-4 (n=32)

Clinical or biological marker	CR/PR (n=11)	SD (n=18)	PD (n=3)	P value
<b>Blood routine test</b>				
ANC	3.800 (3.12, 4.93)	4.115 (2.97, 5.08)	6.260 (6.08, 7.77)	0.350
ALC	1.370 (1.10, 1.88)	1.350 (1.07, 1.62)	1.410 (0.81, 1.80)	0.880
NLR	2.690 (2.33, 3.22)	2.740 (2.01, 5.88)	5.510 (3.38, 7.73)	0.616
AEC	0.180 (0.08, 0.30)	0.135 (0.05, 0.32)	0.160 (0.11, 0.37)	0.881
PLR	142.860 (119.70, 226.13)	189.385 (124.65, 275.70)	228.370 (188.89, 371.60)	0.547
PNI	N=11 48.950 (47.50, 51.50)	N=18 46.625 (40.50, 52.15)	N=3 47.050 (44.05, 48.00)	0.296
<b>Lymphocyte subsets</b>				
B lymphocyte	100.0 (51, 241)	89.5 (69, 102)	124.0 (29, 244)	0.524
NK cell	254.0 (109, 350)	228.5 (113, 298)	99.0 (41, 542)	0.615
CD4 <sup>+</sup> lymphocyte	440.0 (385, 703)	521.5 (369, 632)	507.0 (263, 651)	0.588
CD8 <sup>+</sup> lymphocyte	363.0 (239, 404)	316.0 (222, 441)	439.0 (385, 485)	0.626
LDH	N=7 188.0 (170, 202)	N=12 216.0 (177, 240)	N=2 273.5 (263, 284)	0.147
hsCRP	N=6 17.915 (3.05, 53.92)	N=12 5.500 (1.84, 22.56)	N=2 69.865 (41.48, 98.25)	0.311
ESR	N=6 25.0 (6, 32)	N=11 24.0 (10, 52)	N=2 84.0 (51, 117)	0.029
IL-6	N=11 4.70 (2.0, 22.8)	N=18 4.95 (3.2, 11.9)	N=3 18.20 (16.6, 33.9)	0.595
IL-8	N=8 19.5 (15, 74)	N=10 35.0 (22, 80)	N=3 48.0 (22, 428)	0.498
IL-10	N=8 5.00 (5.0, 5.0)	N=10 5.00 (5.0, 5.0)	N=3 5.00 (5.0, 5.0)	NA
TNF- $\alpha$	N=5 6.30 (5.4, 8.3)	N=8 8.40 (6.9, 9.5)	N=3 10.60 (10.0, 41.8)	0.503

CR, complete response; PR, partial response; SD, stable disease; PD, progressive disease; ANC, absolute neutrophil count; ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; NK, natural killer cell; LDH, lactate dehydrogenase; hsCRP, hyper-sensitive C-reactive protein; ESR, erythrocyte sedimentation rate; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10; NA, not available; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ .

**Table S4** Baseline peripheral blood parameters' associated risk of best overall response in patients receiving chemoimmunotherapy (n=71)

Clinical or biological marker	CR/PR (n=34)	SD (n=31)	PD (n=6)	P value
Blood routine test				
ANC	5.82 (3.99, 7.98)	4.84 (3.83, 6.27)	6.83 (5.45, 8.68)	0.148
ALC	1.32 (1.01, 1.69)	1.32 (1.05, 1.66)	0.87 (0.67, 1.28)	0.254
NLR	4.28 (2.59, 5.89)	3.33 (2.56, 4.82)	7.80 (3.10, 14.00)	0.074
AEC	0.14 (0.04, 0.28)	0.08 (0.04, 0.19)	0.09 (0.03, 0.20)	0.863
PLR	207.20 (149.25, 311.00)	186.45 (133.17, 244.83)	266.71 (261.05, 296.20)	0.365
PNI	N=33 46.45 (44.25, 49.05)	N=30 47.55 (42.10, 50.55)	N=6 44.53 (41.40, 47.80)	0.492
Lymphocyte subsets test				
B lymphocyte (/μL)	N=32 132.0 (78, 200)	N=28 103.5 (70, 157)	N=6 79.5 (46, 98)	0.247
NK cell (/μL)	264.5 (159, 371)	277.0 (200, 512)	247.5 (201, 280)	0.196
CD4 <sup>+</sup> lymphocyte (/μL)	569 (220, 831)	401 (305, 586)	429 (181, 583)	0.204
CD8 <sup>+</sup> lymphocyte (/μL)	337 (219, 428)	359 (230, 457)	338 (162, 467)	0.829
LDH	N=25 227 (188, 276)	N=22 225.5 (188, 251)	N=5 206.0 (188, 211)	0.971
hsCRP	N=19 8.310 (2.69, 32.53)	N=19 24.960 (1.63, 39.44)	N=4 9.100 (5.15, 56.31)	0.911
ESR	N=14 25.0 (11, 73)	N=18 23.5 (10, 43)	N=4 57.5 (35, 65)	0.560
IL6	N=34 4.40 (2.3, 13.0)	N=31 4.50 (2.0, 11.0)	N=6 3.95 (2.0, 17.0)	0.963
IL8	N=33 35.0 (17, 124)	N=31 23.0 (15, 43)	N=6 30.0 (10, 45)	0.095
IL10	N=33 5.0 (5.0, 5.0)	N=31 5.0 (5.0, 5.0)	N=6 5.0 (5.0, 5.0)	0.524
TNF-α	N=26 9.00 (5.9, 11.3)	N=29 8.00 (5.1, 9.7)	N=6 7.45 (5.5, 18.0)	0.009

CR, complete response; PR, partial response; SD, stable disease; PD, progressive disease; ANC, absolute neutrophil count; ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; NK, natural killer cell; LDH, lactate dehydrogenase; hsCRP, hyper-sensitive C-reactive protein; ESR, erythrocyte sedimentation rate; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10; TNF-α, tumor necrosis factor α.

**Table S5** Baseline peripheral blood parameters' associated risk of best overall response in patients receiving first-line chemoimmunotherapy (n=53)

Clinical or biological marker	CR/PR (n=31)	SD (n=19)	PD (n=3)	P value
Blood routine test				
ANC	5.89 (4.455, 8.125)	5.23 (3.905, 6.445)	6.57 (5.45, 6.58)	0.276
ALC	1.29 (1.02, 1.69)	1.19 (1.035, 1.57)	1.28 (0.67, 1.76)	0.933
NLR	4.95 (2.82, 6.15)	3.33 (2.80, 6.28)	5.13 (3.10, 10.57)	0.553
AEC	0.14 (0.04, 0.28)	0.13 (0.055, 0.21)	0.13 (0.02, 0.20)	0.742
PLR	214.4 (152.65, 304.88)	196.52 (165.98, 281.82)	264.06 (183.52, 505.97)	0.664
PNI	N=30 45.88 (43.65, 48.99)	N=18 46.075 (39.375, 50.25)	N=3 47.80 (41.40, 48.35)	0.978
Lymphocyte subsets test				
	N=27	N=16	N=3	
B lymphocyte ( $\mu$ L)	136.0 (77.5, 218)	106.5 (61.25, 170)	98 (74, 234)	0.523
NK cell ( $\mu$ L)	258 (158.5, 373.5)	318.5 (233, 570)	260 (235, 506)	0.309
CD4 <sup>+</sup> T lymphocyte ( $\mu$ L)	573 (231.5, 791.5)	397.5 (314.75, 508)	463 (394, 633)	0.707
CD8 <sup>+</sup> T lymphocyte ( $\mu$ L)	336 (243.5, 426)	284.5 (200.75, 417)	467 (319, 471)	0.303
LDH	N=23 220 (185, 251.5)	N=14 226 (215.25, 257.75)	N=2 NA	0.310
hsCRP	N=17 8.31 (3.11, 31.14)	N=12 31.42 (4.38, 60.135)	N=1 9.61	0.495
ESR	N=12 25.0 (11.08, 74.5)	N=11 28 (19.5, 48.5)	N=2 NA	0.971
IL6	N=31 4.2 (2.25, 9.85)	N=19 4.5 (2, 17.3)	N=3 5.1 (2.8, 19.5)	0.824
IL8	N=30 49 (16.25, 160)	N=19 25 (17, 41.5)	N=3 45 (20, 439)	0.303
IL10	N=30 5.0 (5.0, 5.0)	N=19 5.0 (5.0, 5.0)	N=3 5.0 (5.0, 5.0)	0.768
TNF- $\alpha$	N=23 9.1 (6.05, 11.45)	N=17 8.6 (5.2, 9.8)	N=3 7.5 (5.1, 76.8)	0.657

CR, complete response; PR, partial response; SD, stable disease; PD, progressive disease; ANC, absolute neutrophil count; ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; NK, natural killer cell; LDH, lactate dehydrogenase; NA, not available; hsCRP, hyper-sensitive C-reactive protein; ESR, erythrocyte sedimentation rate; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ .

**Table S6** Baseline peripheral blood parameters' associated risk of incidence of irAEs in patients receiving chemoimmunotherapy (n=71)

Clinical or biological marker	Without irAEs (n=47)	With irAEs (n=24)	P value
Blood routine test			
ANC	5.730 (4.08, 7.54)	5.090 (3.27, 6.98)	0.454
ALC	1.320 (0.86, 1.71)	1.225 (1.08, 1.64)	0.293
NLR	4.330 (3.04, 7.56)	3.425 (2.44, 5.35)	0.063
AEC	0.100 (0.02, 0.23)	0.140 (0.06, 0.29)	0.135
PLR	204.670 (156.13, 281.32)	179.520 (133.88, 296.73)	0.252
PNI	N=46 47.800 (43.30, 49.95)	N=23 45.370 (42.45, 48.95)	0.418
Lymphocyte subsets			
	N=41	N=23	
B lymphocyte	119.0 (83, 157)	133.0 (59, 178)	0.534
NK cell	260.0 (173, 494)	271.0 (184, 376)	0.345
CD4 <sup>+</sup> T lymphocyte	463.0 (220, 622)	428.0 (268, 752)	0.531
CD8 <sup>+</sup> T lymphocyte	341.0 (197,465)	338.0 (280, 428)	0.707
LDH	N=33 226.0 (188, 260)	N=19 216.0 (170, 249)	0.235
hsCRP	N=29 8.590 (3.11, 39.40)	N=13 16.890 (2.52, 32.53)	0.235
ESR	N=28 19.5 (11, 51)	N=8 53.5 (25, 88)	0.066
IL-6	N=47 4.20 (2.0, 13.0)	N=24 5.00 (2.0, 11.7)	0.735
IL-8	N=46 24.0 (16, 44)	N=24 48.0 (16, 135)	0.134
IL-10	N=46 5.0 (5.0, 5.0)	N=24 5.0 (5.0, 5.0)	0.362
TNF- $\alpha$	N=43 8.00 (5.3, 10.4)	N=18 7.65 (6.2, 9.4)	0.408

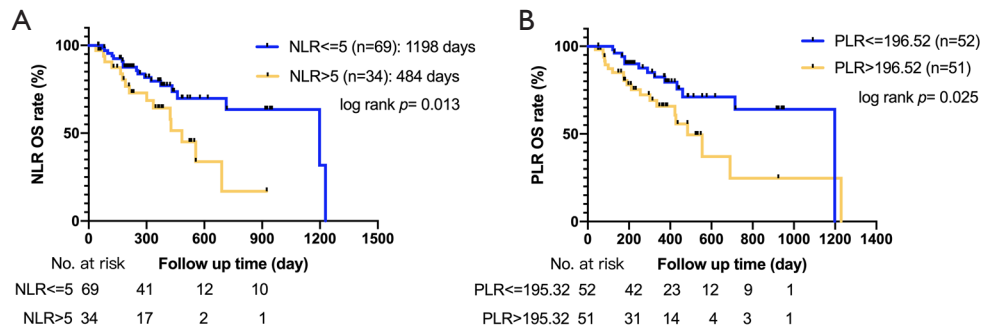
ANC, absolute neutrophil count; ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; NK cell, natural killer cell; LDH, lactate dehydrogenase; hsCRP, hyper-sensitive C-reactive protein; ESR, erythrocyte sedimentation rate; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ .

**Table S7** Baseline peripheral blood parameters' associated risk of incidence of irAEs in patients receiving chemoimmunotherapy as first-line therapy (n=53)

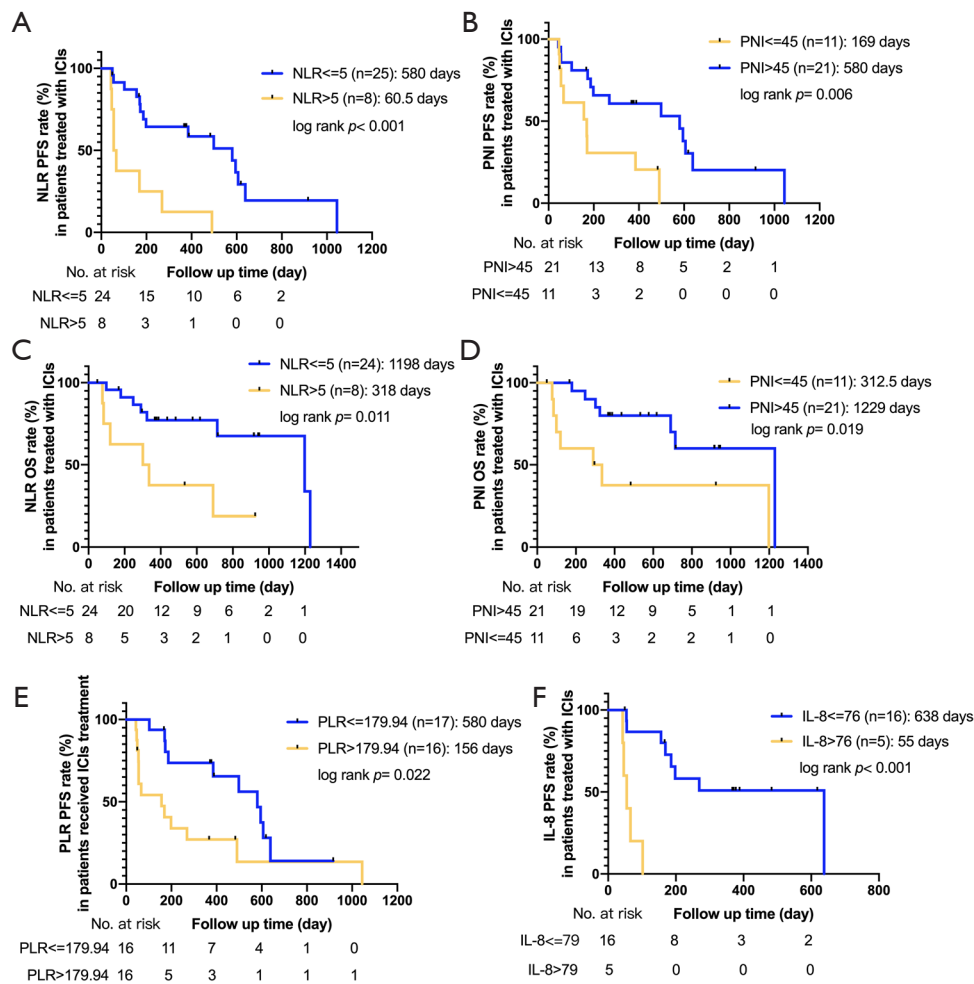
Clinical or biological marker	Without irAEs (n=33)	With irAEs (n=20)	P value
Blood routine test	N=33	N=20	
ANC	5.890 (4.71, 7.19)	5.425 (3.63, 7.82)	0.727
ALC	1.280 (0.86, 1.68)	1.250 (1.09, 1.64)	0.227
NLR	3.990 (3.06, 7.56)	3.414 (2.44, 5.51)	0.154
AEC	0.130 (0.02, 0.23)	0.145 (0.06, 0.28)	0.139
PLR	214.400 (162.79, 323.26)	204.310 (145.90, 297.63)	0.193
PNI	N=32 46.950 (42.64, 49.80)	N=19 45.050 (42.275, 48.25)	0.513
Lymphocyte subsets	N=27	N=19	
B lymphocyte	129.0 (74, 209.5)	133.0 (76, 189)	0.465
NK cell	235.0 (158.5, 500)	278.0 (249, 391)	0.728
CD4 <sup>+</sup> T lymphocyte	438.0 (231.5, 627.5)	565.0 (358.5, 791.5)	0.327
CD8 <sup>+</sup> T lymphocyte	319.0 (197,462)	336.0 (288.5, 419)	0.461
LDH	N=23 222.0 (188, 252.5)	N=16 226.0 (178.5, 252.75)	0.618
hsCRP	N=20 8.960 (3.845, 37.99)	N=10 27.545 (8.95, 37.71)	0.508
ESR	N=19 21.0 (12.22, 48.50)	N=6 68.5 (39, 89.75)	0.113
IL-6	N=33 4.0 (2.0, 9.4)	N=20 5.00 (2.15, 12.75)	0.639
IL-8	N=32 26.5 (16.75, 48)	N=20 63.0 (22.25, 181.25)	0.147
IL-10	N=32 5.0 (5.0, 5.0)	N=20 5.0 (5.0, 5.0)	0.255
TNF- $\alpha$	N=29 8.90 (5.3, 10.8)	N=14 7.90 (6.325, 9.375)	0.500

ANC, absolute neutrophil count; ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutrition index; NK cell, natural killer cell; LDH, lactate dehydrogenase; hsCRP, hyper-sensitive C-reactive protein; ESR, erythrocyte sedimentation rate; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ .

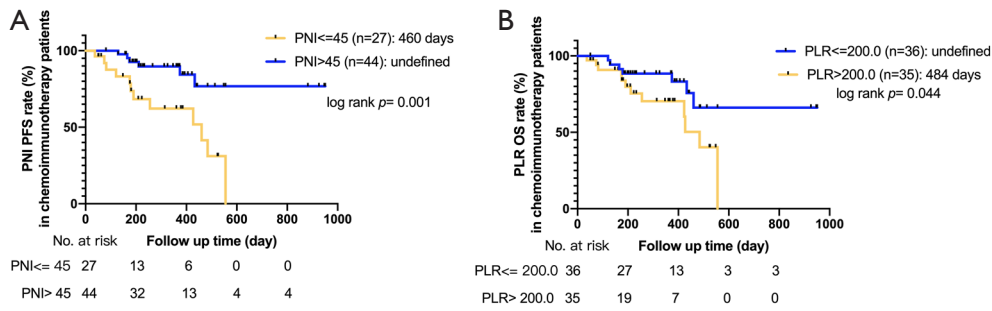




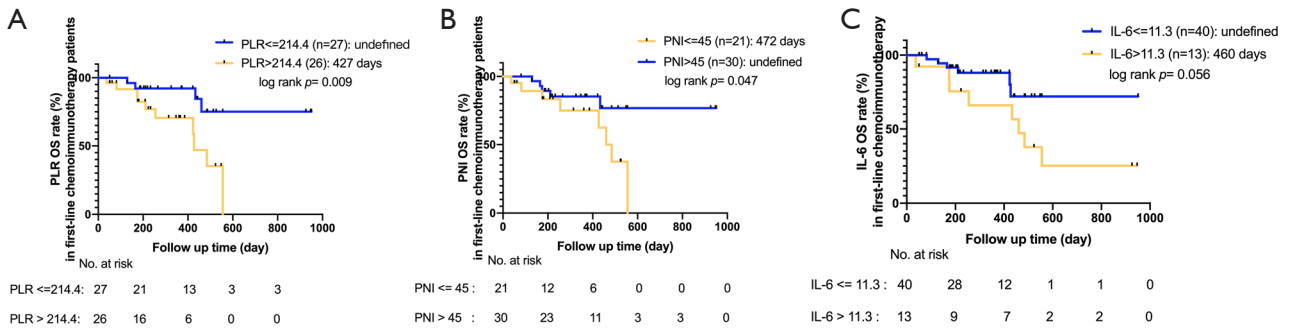
**Figure S2** Kaplan-Meier analysis of OS for all patients (n=103) with ICI-treated advanced NSCLC according to the NLR ( $\leq 5$  vs.  $> 5$ ) (A) and the PLR ( $\leq$  median of 196.52 vs.  $> 196.52$ ) (B). The P values were calculated with the log rank test. OS, overall survival; ICI, immune checkpoint inhibitor; NSCLC, non-small cell lung cancer; NLR, neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio.



**Figure S3** Kaplan-Meier analysis of PFS or OS for patients receiving immunotherapy only (n=32) according to the NLR ( $\leq 5$  vs.  $> 5$ ) (A,C), the PNI ( $\leq 45$  vs.  $> 45$ ) (B,D), the PLR ( $\leq$  median of 179.94 vs.  $> 179.94$ ) (E), and the IL-8 ( $\leq 76$  vs.  $> 76$ ) (F). The P values were calculated with the log rank test. PFS, progression-free survival; OS, overall survival; NLR, neutrophil-to-lymphocyte ratio; PNI, prognostic nutritional index; PLR, platelet-to-lymphocyte ratio; IL-8, interleukin-8.



**Figure S4** For patients receiving chemoimmunotherapy (n=71), Kaplan-Meier analysis of PFS according to the PNI ( $\leq 45$  vs.  $> 45$ ) (A) and Kaplan-Meier analysis of OS according to the PLR ( $\leq 200$  vs.  $> 200$ ) (B). The P values were calculated with the log rank test. PFS, progression free survival; PNI, prognostic nutritional index; OS, overall survival; PLR, platelet-to-lymphocyte ratio.



**Figure S5** Kaplan-Meier analysis of OS for patients receiving first-line chemoimmunotherapy (n=53) according to the PLR ( $\leq$  median of 214.4 vs.  $> 214.4$ ) (A), the PNI ( $\leq 45$  vs.  $> 45$ ) (B), and the IL-6 ( $\leq 11.3$  vs.  $> 11.3$ ) (C). The P values were calculated with the log rank test. OS, overall survival; PLR, platelet-to-lymphocyte ratio; PNI, prognostic nutritional index; IL-6, interleukin-6.

**Table S8** Multivariate analyses of PFS and OS for patients receiving chemoimmunotherapy for first-line therapy (n=53, with 51 patient's data available)

Variable	Category	PFS			OS		
		HR	95% CI	P value	HR	95% CI	P value
PLR	$> 214.4$	1.090	0.322–3.690	0.890	2.805	0.586–13.433	0.197
PNI	$> 45$	0.887	0.252–3.122	0.852	0.926	0.188–4.552	0.924
IL6	$> 11.3$	2.215	0.842–5.831	0.107	2.354	0.644–8.609	0.196

PFS, progression-free survival; OS, overall survival; HR, hazard ratio; CI, confidence interval; PLR, platelet-to-lymphocyte ratio; PNI, prognostic nutritional index; IL-6, interleukin-6.

**Table S9** Changes between pretreatment and on-treatment peripheral blood parameters' associated risk of best overall response

Variables		CR/PR (n=27)	SD (n=27)	PD (n=5)	P value
<b>Blood routine test</b>					
ALC	Q1	6 (22.2%)	7 (25.9%)	1 (20.0%)	0.233
	Q2	10 (37.0%)	5 (18.5%)	1 (20.0%)	
	Q3	5 (18.5%)	5 (18.5%)	3 (60.0%)	
	Q4	6 (22.2%)	10 (37.0%)	0	
NLR	Q1	7 (25.9%)	6 (22.2%)	2 (40.0%)	0.854
	Q2	7 (25.9%)	6 (22.2%)	1 (20.0%)	
	Q3	7 (25.9%)	8 (29.6%)	0	
	Q4	6 (22.2%)	7 (25.9%)	2 (40.0%)	
AEC	Q1	7 (25.9%)	7 (25.9%)	1 (20.0%)	0.676
	Q2	10 (37.0%)	7 (25.9%)	1 (20.0%)	
	Q3	3 (11.1%)	8 (29.6%)	1 (20.0%)	
	Q4	7 (25.9%)	5 (18.5%)	2 (40.0%)	
PLR	Q1	8 (29.6%)	6 (22.2%)	1 (20.0%)	0.451
	Q2	8 (29.6%)	6 (22.2%)	0	
	Q3	5 (18.5%)	9 (33.3%)	1 (20.0%)	
	Q4	6 (22.2%)	6 (22.2%)	3 (60.0%)	
<b>Lymphocyte subsets test</b>		N=21	N=21	N=4	
B lymphocyte	Q1	6 (28.6%)	6 (28.6%)	0	0.549
	Q2	4 (19.0%)	5 (23.8%)	2 (50.0%)	
	Q3	6 (28.6%)	4 (19.0%)	2 (50.0%)	
	Q4	5 (23.8%)	6 (28.6%)	0	
NK cell	Q1	4 (19.0%)	7 (33.3%)	1 (25.0%)	0.531
	Q2	8 (38.1%)	3 (14.3%)	1 (25.0%)	
	Q3	6 (28.6%)	4 (19.0%)	1 (25.0%)	
	Q4	3 (14.3%)	7 (33.3%)	1 (25.0%)	
CD4 <sup>+</sup> lymphocyte	Q1	6 (28.6%)	6 (28.6%)	0	0.043
	Q2	5 (23.8%)	3 (14.3%)	4 (100.0%)	
	Q3	5 (23.8%)	6 (28.6%)	0	
	Q4	5 (23.8%)	6 (28.6%)	0	
CD8 <sup>+</sup> lymphocyte	Q1	6 (28.6%)	5 (23.8%)	1 (25.0%)	0.986
	Q2	6 (28.6%)	4 (19.0%)	1 (25.0%)	
	Q3	5 (23.8%)	6 (28.6%)	1 (25.0%)	
	Q4	4 (19.0%)	6 (28.6%)	1 (25.0%)	

Table S9 (continued)

Table S9 (continued)

Variables	CR/PR (n=27)	SD (n=27)	PD (n=5)	P value
LDH	N=17	N=16	N=4	
Q1	6 (35.3%)	3 (18.8%)	1 (25.0%)	0.747
Q2	4 (23.5%)	4 (25.0%)	1 (25.0%)	
Q3	5 (29.4%)	3 (18.8%)	1 (25.0%)	
Q4	2 (11.8%)	6 (37.5%)	1 (25.0%)	
IL-6	N=27	N=27	N=5	
Decrease	13 (48.1%)	8 (29.6%)	2 (40.0%)	0.734
Stable	9 (33.3%)	13 (48.1%)	2 (40.0%)	
Increase	5 (18.5%)	6 (22.2%)	1 (20.0%)	
IL-8	N=24	N=26	N=5	
Decrease	12 (50.0%)	10 (38.5%)	2 (40.0%)	0.235
Stable	11 (45.8%)	12 (46.2%)	1 (20.0%)	
Increase	1 (4.2%)	4 (15.4%)	2 (40.0%)	
IL-10	N=24	N=26	N=5	0.611
Decrease	1 (4.2%)	0	0	
Stable	22 (91.7%)	23 (88.5%)	5 (100.0%)	
Increase	1 (4.2%)	3 (11.5%)	0	

ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; LDH, lactate dehydrogenase; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10.

**Table S10** Changes between pretreatment and on-treatment peripheral blood parameters' associated risk of incidence of irAEs

Variables		Without irAEs (n=40)	With irAEs (n=19)	P value
<b>Blood routine test</b>				
ALC	Q1	10 (25.0%)	4 (21.1%)	0.35
	Q2	8 (20.0%)	8 (42.1%)	
	Q3	10 (25.0%)	3 (15.8%)	
	Q4	12 (30.0%)	4 (21.1%)	
NLR	Q1	10 (25.0%)	5 (26.3%)	0.868
	Q2	10 (25.0%)	4 (21.1%)	
	Q3	9 (22.5%)	6 (31.6%)	
	Q4	11 (27.5%)	4 (21.1%)	
AEC	Q1	9 (22.5%)	6 (31.6%)	0.815
	Q2	13 (32.5%)	5 (26.3%)	
	Q3	9 (22.5%)	3 (15.8%)	
	Q4	9 (22.5%)	5 (26.3%)	
PLR	Q1	11 (27.5%)	4 (21.1%)	0.763
	Q2	8 (20.0%)	6 (31.6%)	
	Q3	11 (27.5%)	4 (21.1%)	
	Q4	10 (25.0%)	5 (26.3%)	
<b>Lymphocyte subsets test</b>		N=29	N=17	
B cell	Q1	8 (27.6%)	4 (23.5%)	0.924
	Q2	6 (20.7%)	5 (29.4%)	
	Q3	8 (27.6%)	4 (23.5%)	
	Q4	7 (24.1%)	4 (23.5%)	
NK cell	Q1	7 (24.1%)	5 (29.4%)	0.448
	Q2	6 (20.7%)	6 (35.3%)	
	Q3	9 (31.0%)	2 (11.8%)	
	Q4	7 (24.1%)	4 (23.5%)	
CD4 <sup>+</sup> lymphocyte	Q1	8 (27.6%)	4 (23.5%)	0.924
	Q2	8 (27.6%)	4 (23.5%)	
	Q3	6 (20.7%)	5 (29.4%)	
	Q4	7 (24.1%)	4 (23.5%)	
CD8 <sup>+</sup> lymphocyte	Q1	8 (27.6%)	4 (23.5%)	0.708
	Q2	7 (24.1%)	4 (23.5%)	
	Q3	6 (20.7%)	6 (35.3%)	
	Q4	8 (27.6%)	3 (17.6%)	

**Table S10** (continued)

Table S10 (continued)

Variables		Without irAEs (n=40)	With irAEs (n=19)	P value
LDH		N=26	N=11	
	Q1	8 (30.8%)	2 (18.2%)	0.892
	Q2	6 (23.1%)	3 (27.3%)	
	Q3	6 (23.1%)	3 (27.3%)	
	Q4	6 (23.1%)	3 (27.3%)	
IL-6		N=40	N=19	
	Decrease	16 (40.0%)	7 (36.8%)	0.973
	Stable	16 (40.0%)	8 (42.1%)	
	Increase	8 (20.0%)	4 (21.1%)	
IL-8		N=37	N=19	
	Decrease	17 (45.9%)	7 (38.9%)	0.338
	Stable	17 (45.9%)	7 (38.9%)	
	Increase	3 (8.1%)	4 (22.2%)	
IL-10		N=37	N=18	
	Decrease	0	1 (5.6%)	0.337
	Stable	34 (91.9%)	16 (88.9%)	
	Increase	3 (8.1%)	1 (5.6%)	

ALC, absolute lymphocyte count; NLR, neutrophil-lymphocyte ratio; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; LDH, lactate dehydrogenase; IL-6, interleukin-6; IL-8, interleukin-8; IL-10, interleukin-10.

**Table S11** Comparison of changes of pretreatment and on-treatment blood parameters (on-treatment results minus pretreatment results) between patients receiving chemoimmunotherapy and patients receiving ICI monotherapy (n=59)

Variables	Chemoimmunotherapy (n=46)	Immunotherapy (n=13)	P value
Change of ALC	-0.0726±0.58	0.3085±0.58	0.051
Change of AEC	-0.1489±0.52	0.0008±0.11	0.308
Change of PLR	19.2281±235.84	-25.2486±96.60	0.511
Change of PNI	0.3400±6.30	2.5100±4.88	0.274
Change of NLR	-0.1305±4.62	-1.5010±3.76	0.331
Change of IL-6	-4.0587±15.40	-1.3462±17.36	0.588
Change of IL-8	-5.6700±104.27	-79.9000±125.841	0.055
Change of TNF- $\alpha$	1.1500±0.68	1.1300±1.01	0.942

ALC, absolute lymphocyte count; AEC, absolute eosinophils count; PLR, platelet-lymphocyte ratio; PNI, prognostic nutritional index; NLR, neutrophil-lymphocyte ratio; IL-6, interleukin-6; IL-8, interleukin-8; TNF- $\alpha$ , tumor necrosis factor  $\alpha$ .