

Table S1 Best response based on the LEM score in the test set, validation set, and the pooled cohort

Best response	Risk stratification								
	Test set (n=87)			Validation set (n=171)			Pooled cohort (n=258)		
	Good (n=33, 37.9%)	Intermediate (n=28, 32.2%)	Poor (n=26, 29.9%)	Good (n=78, 45.6%)	Intermediate (n=78, 45.6%)	Poor (n=15, 8.8%)	Good (n=111, 43.0%)	Intermediate (n=106, 41.1%)	Poor (n=41, 15.9%)
CR, PR n (%)	18 (20.7)	12 (13.8)	2 (2.3)	44 (25.7)	23 (13.4)	1 (0.6)	62 (24.0)	35 (13.6)	3 (1.2)
SD, PD n (%)	15 (17.2)	16 (18.4)	24 (27.6)	34 (19.9)	55 (32.2)	14 (8.2)	49 (19.0)	71 (27.5)	38 (14.7)
p value	p<0.001			p<0.001			p<0.001		

LEM score: Good: 0-1; Intermediate: 2-3; Poor: 4-6; CR: Complete response; PD: Progression disease; PR: Partial response; SD: Stable disease.

Table S2 The LEM score of 41 patients underwent DNA sequencing

	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11
LEM score	3	4	1	4	3	4	6	0	3	3	1
	N12	N13	N14	N15	N16	N17	N18	N19	N20	N21	N22
LEM score	4	5	6	1	2	0	5	3	4	6	2
	N23	N24	N25	N26	N27	N28	N29	D1	D2	D3	D4
LEM score	1	3	2	0	5	2	2	2	3	3	0
	D5	D6	D7	D8	D9	D10	D11	D12			
LEM score	0	0	4	3	2	0	0	3			

N, NDB; D, DCB.

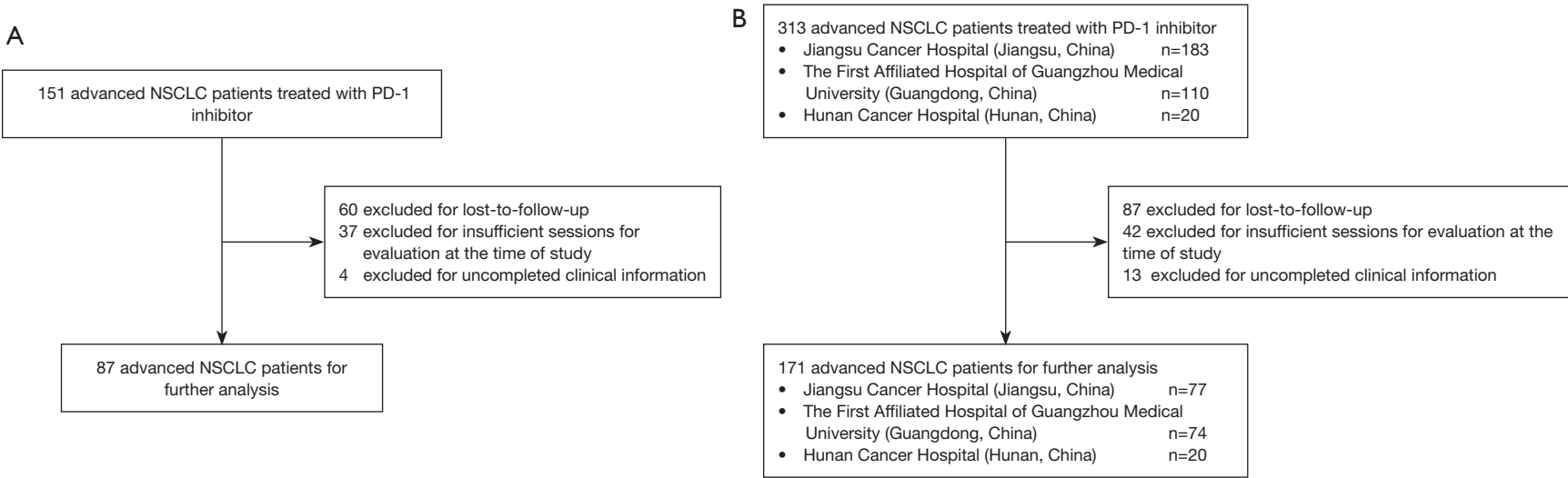


Figure S1 Flow chart of patients' enrollment and exclusion. A total of 464 patients with advanced NSCLC who were treated with PD-1 inhibitors were enrolled, and 258 were included in the final analysis. (A) Test set (n=151); (B) Validation set (n=313).

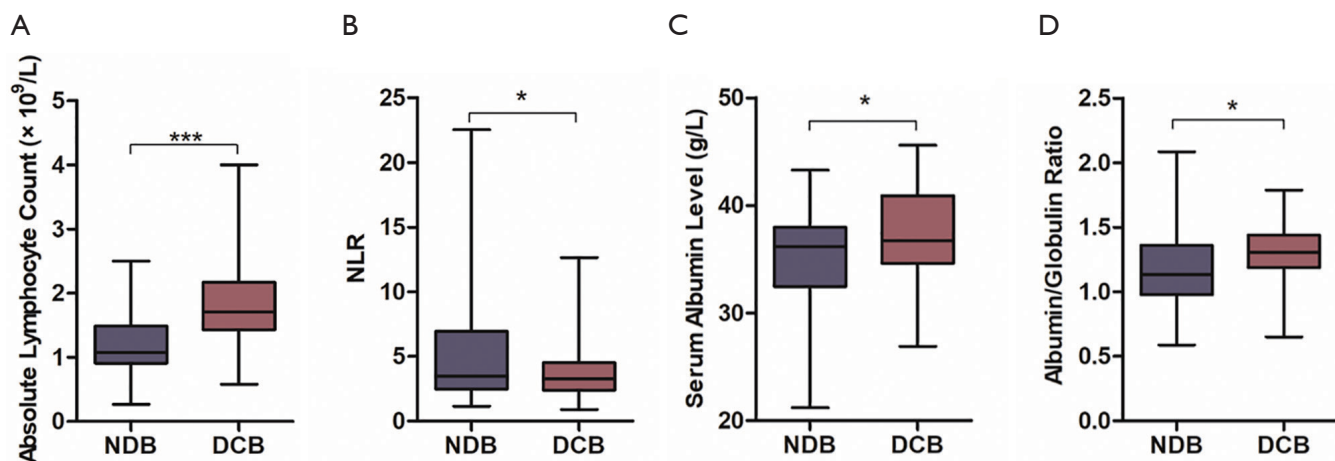


Figure S2 Variables showed difference between NDB and DCB group. (A) Absolute lymphocyte count ($\times 10^9/L$). (B) NLR. (C) Serum albumin concentration (g/L). (D) Albumin/Globulin ratio. *, $P < 0.05$, ***, $P < 0.001$. NLR, neutrophil to lymphocyte ratio; NDB, no durable benefit; DCB, durable clinical benefit.

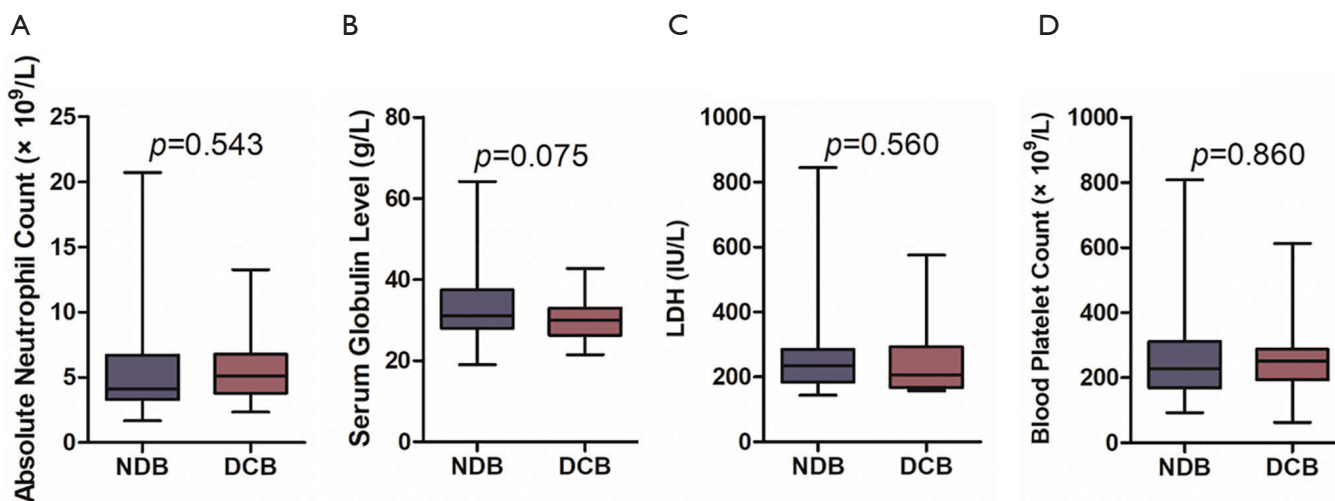


Figure S3 Variables showed no difference between NDB and DCB group. (A) Absolute neutrophil count ($\times 10^9/L$). (B) Serum globulin level (g/L). (C) LDH level. (D) Blood platelet count ($\times 10^9/L$). NDB, no durable benefit; DCB, durable clinical benefit.

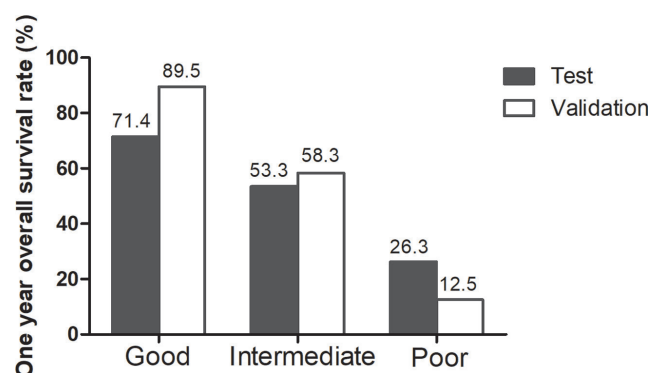


Figure S4 One-year overall survival (OS) rate based on the LEM score in the test set and the validation set. LEM score: Good: 0-1; Intermediate: 2-3; Poor: 4-6.