

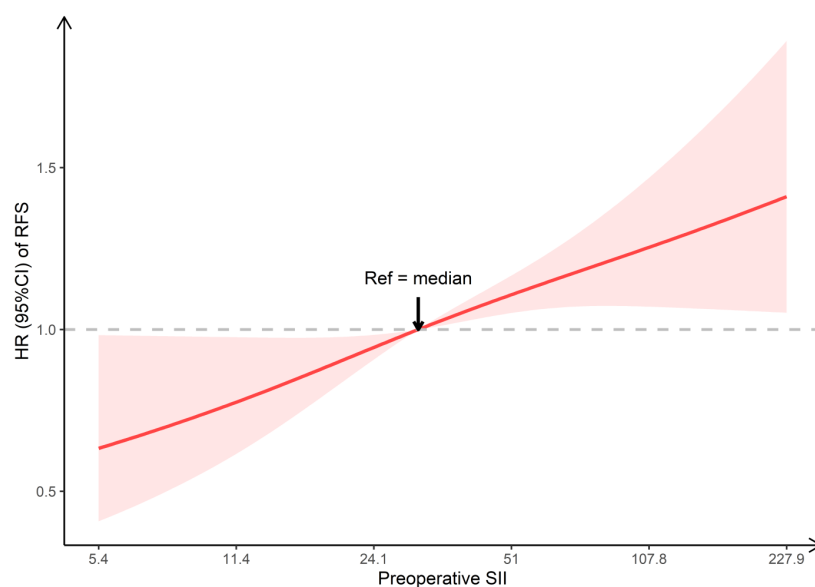


Figure S1 Association of preoperative SII with RFS based on the Cox models in overall patients. CI, confidence interval; HR, hazard ratio; RCS, restricted cubic splines; ref, reference; RFS, recurrence-free survival; SII, system immune-inflammatory index.

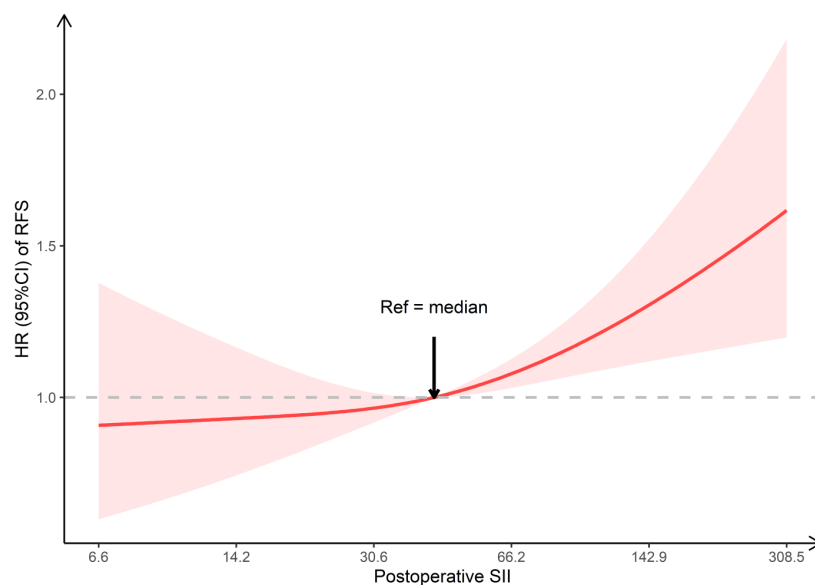


Figure S2 Association of postoperative SII with RFS based on the Cox models in overall patients. CI, confidence interval; HR, hazard ratio; RCS, restricted cubic splines; ref, reference; RFS, recurrence-free survival; SII, system immune-inflammatory index.

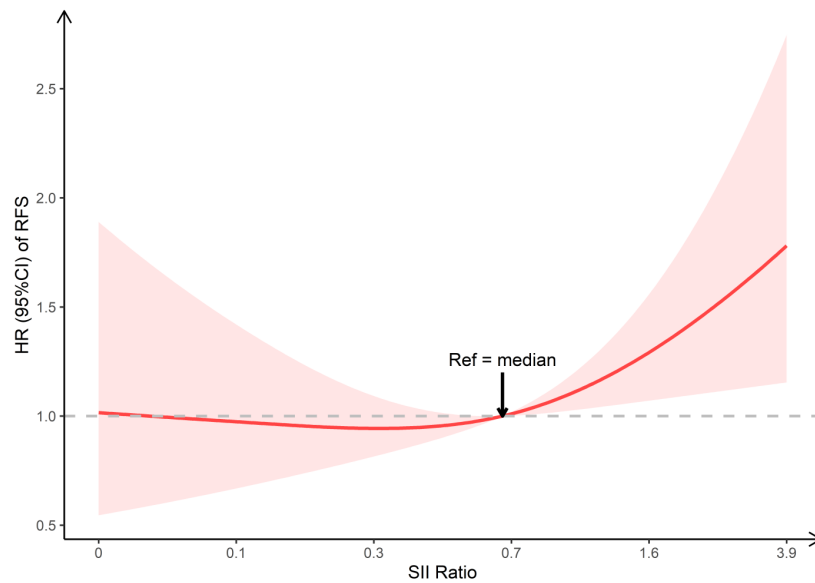


Figure S3 Association of postoperative/preoperative SII ratio with RFS based on the Cox models in patients with high preoperative SII. CI, confidence interval; HR, hazard ratio; RCS, restricted cubic splines; ref, reference; RFS, recurrence-free survival; SII, system immune-inflammatory index.

Table S1 LCGMM results of SII model fitting process

No. latent class	Polynomial degree	Log-Lik	BIC	% Participants per class	Mean posterior probabilities	% Posterior probabilities >70%
1	Linear	-31,037	62,113	100	NA	NA
1	Quadratic	-30,814	61,681	100	NA	NA
1	Cubic	-30,812	61,693	100	NA	NA
2	Linear	-30,999	62,058	1.59/98.41	0.82/0.99	74.19/99.32
2	Quadratic	-30,761	61,605	1.95/98.05	0.82/0.99	71.05/99.01
2	Cubic	-30,769	61,644	93.34/6.66	0.84/0.73	90.83/49.23
3	Linear	-30,999	62,081	1.74/98.26/0	0.8/0.86/NA	67.65/99.01/NA
3	Quadratic	-30,739	61,592	2.05/0.41/97.54	0.83/0.82/0.98	70/62.5/98.79
3 [†]	Cubic [†]	-30,710 [†]	61,564 [†]	2.31/4/93.7 [†]	0.82/0.75/0.88 [†]	68.89/58.97/94.47 [†]
4	Linear	-30,978	62,062	0.51/2.26/95.59/1.64	0.87/0.8/0.91/0.81	80/70.45/97.27/68.75
4	Quadratic	-30,727	61,598	1.54/0.41/97.18/0.87	0.81/0.87/0.97/0.8	76.67/75/98.42/58.82
4	Cubic	-30,700	61,581	2.31/4.15/92.93/0.62	0.81/0.7/0.86/0.81	68.89/45.68/92.28/66.67
5	Linear	-30,966	62,061	2.36/93.44/1.13/0.56/2.51	0.58/0.88/0.69/0.88/0.8	23.91/92.92/50/81.82/71.43
5	Quadratic	-30,718	61,611	1.38/1.28/1.69/95.23/0.41	0.66/0.62/0.76/0.93/0.91	40.74/36/57.58/96.29/100
5	Cubic	-30,682	61,585	2.26/0.82/93.29/3.49/0.15	0.81/0.83/0.87/0.75/0.95	75/68.75/94.23/61.76/100

[†], the best fitting model. No. latent class: latent class number of the model; Log-Lik: the maximum log-likelihood. BIC, Bayesian Information Criterion; LCGMM, latent class growth mixed model; NA, not applicable; SII, system immune-inflammatory index.

Table S2 Characteristics of preoperative and postoperative SII groups

Variables	Low pre-SII group (n=1,511)	High pre-SII but lowered post-SII group (n=435)	High pre-SII and post- SII (n=83)	Total (n=2,029)	P value
Covariates					
Age (years)	58.0 (52.0, 65.0)	60.0 (52.0, 68.0)	64.0 (56.5, 69.5)	59.0 (52.0, 66.0)	<0.001
Male	740 (49.0)	284 (65.3)	56 (67.5)	1,080 (53.2)	<0.001
Preoperative SII	23.3 (15.7, 33.5)	82.4 (63.0, 140.7)	123.3 (80.3, 278.6)	29.8 (18.3, 51.3)	<0.001
Postoperative SII	36.5 (21.8, 71.6)	52.2 (31.5, 96.2)	323.1 (258.4, 505.3)	42.6 (23.4, 85.5)	<0.001
Smoking history	524 (35.2)	213 (49.4)	48 (59.3)	785 (39.3)	<0.001
Surgical approach					<0.001
Thoracoscopic resection	971 (64.3)	188 (43.2)	25 (30.1)	1,184 (58.4)	
Thoracotomy	540 (35.7)	247 (56.8)	58 (69.9)	845 (41.6)	
Surgical procedure					0.11
Lobectomy	1,228 (81.3)	357 (82.3)	66 (79.5)	1,651 (81.4)	
Segmentectomy	47 (3.1)	11 (2.5)	2 (2.4)	60 (3.0)	
Wedge	136 (9.0)	26 (6.0)	5 (6.0)	167 (8.2)	
Pneumonectomy	100 (6.6)	40 (9.2)	10 (12.0)	150 (7.4)	
Lymph node metastasis	295 (21.2)	118 (29.0)	30 (39.0)	443 (23.6)	<0.001
Lobar location					0.27
Lower	599 (41.3)	162 (39.4)	34 (45.3)	795 (41.1)	
Middle	107 (7.4)	26 (6.3)	1 (1.3)	134 (6.9)	
Upper	744 (51.3)	223 (54.3)	40 (53.3)	1,007 (52.0)	
T stage					<0.001
T1	754 (49.9)	133 (30.6)	17 (20.5)	904 (44.6)	
T2	567 (37.5)	171 (39.3)	33 (39.8)	771 (38.0)	
T3	114 (7.5)	72 (16.6)	19 (22.9)	205 (10.1)	
T4	76 (5.0)	59 (13.6)	14 (16.9)	149 (7.3)	
N stage					<0.001
N0	1,149 (79.1)	299 (70.5)	50 (61.7)	1,498 (76.5)	
N1	127 (8.7)	51 (12.0)	4 (4.9)	182 (9.3)	
N2	172 (11.8)	70 (16.5)	24 (29.6)	266 (13.6)	
N3	5 (0.3)	4 (0.9)	3 (3.7)	12 (0.6)	
Pathological stage					<0.001
I	971 (66.8)	187 (44.1)	29 (35.8)	1,187 (60.6)	
II	233 (16.0)	108 (25.5)	16 (19.8)	357 (18.2)	
III	249 (17.1)	129 (30.4)	36 (44.4)	414 (21.1)	
Histological type					<0.001
Adenocarcinoma	1,272 (84.2)	283 (65.1)	52 (62.7)	1,607 (79.2)	
Squamous cell carcinoma	180 (11.9)	125 (28.7)	28 (33.7)	333 (16.4)	
Other	59 (3.9)	27 (6.2)	3 (3.6)	89 (4.4)	
Adjuvant therapy	97 (6.5)	44 (10.1)	5 (6.0)	146 (7.2)	0.03
Outcome					
Recurrence	405 (26.8)	175 (40.2)	48 (57.8)	628 (31.0)	<0.001
RFS time (months)	44.3 (33.8, 60.9)	38.5 (17.3, 53.8)	36.2 (10.8, 49.0)	42.1 (29.9, 59.3)	<0.001
Lung metastasis	65 (4.3)	20 (4.6)	3 (3.6)	88 (4.3)	0.91
Brain metastasis	87 (5.8)	29 (6.7)	2 (2.4)	118 (5.8)	0.31
Liver metastasis	20 (1.3)	7 (1.6)	4 (4.8)	31 (1.5)	0.04
Bone metastasis	68 (4.5)	32 (7.4)	7 (8.4)	107 (5.3)	0.03

Data are median (IQR) for continuous variables and number (%) for categorical variables. IQR, interquartile range; N, node; RFS, recurrence-free survival; SII, system immune-inflammatory index; T, tumor.

Table S3 Characteristics of postoperative/preoperative SII groups

Variables	Low pre-SII group (n=1,511)	High pre-SII but low post/ pre-SII ratio group (n=451)	High pre-SII and post/ pre-SII ratio (n=67)	Total (n=2,029)	P value
Age (years)	58.0 (52.0, 65.0)	61.0 (53.0, 68.0)	64.0 (54.0, 69.0)	59.0 (52.0, 66.0)	<0.001
Male	740 (49.0)	298 (66.1)	42 (62.7)	1,080 (53.2)	<0.001
Preoperative SII	23.3 (15.7, 33.5)	89.5 (66.6, 182.9)	75.8 (59.8, 108.1)	29.8 (18.3, 51.3)	<0.001
Postoperative SII	36.5 (21.8, 71.6)	54.3 (32.5, 100.2)	289.9 (192.8, 447.5)	42.6 (23.4, 85.5)	<0.001
Smoking history	524 (35.2)	225 (50.2)	36 (56.2)	785 (39.3)	<0.001
Surgical approach					<0.001
Thoracoscopic resection	971 (64.3)	189 (41.9)	24 (35.8)	1,184 (58.4)	
Thoracotomy	540 (35.7)	262 (58.1)	43 (64.2)	845 (41.6)	
Surgical procedure					0.049
Lobectomy	1,228 (81.3)	370 (82.2)	53 (79.1)	1,651 (81.4)	
Segmentectomy	47 (3.1)	13 (2.9)	0 (0.0)	60 (3.0)	
Wedge	136 (9.0)	25 (5.6)	6 (9.0)	167 (8.2)	
Pneumonectomy	100 (6.6)	42 (9.3)	8 (11.9)	150 (7.4)	
Lymph node metastasis	295 (21.2)	124 (29.4)	24 (38.7)	443 (23.6)	<0.001
Lobar location					0.10
Lower	599 (41.3)	165 (38.8)	31 (50.8)	795 (41.1)	
Middle	107 (7.4)	27 (6.4)	0 (0.0)	134 (6.9)	
Upper	744 (51.3)	233 (54.8)	30 (49.2)	1,007 (52.0)	
T stage					<0.001
T1	754 (49.9)	136 (30.2)	14 (20.9)	904 (44.6)	
T2	567 (37.5)	172 (38.1)	32 (47.8)	771 (38.0)	
T3	114 (7.5)	76 (16.9)	15 (22.4)	205 (10.1)	
T4	76 (5.0)	67 (14.9)	6 (9.0)	149 (7.3)	
N stage					<0.001
N0	1,149 (79.1)	309 (70.2)	40 (61.5)	1,498 (76.5)	
N1	127 (8.7)	49 (11.1)	6 (9.2)	182 (9.3)	
N2	172 (11.8)	78 (17.7)	16 (24.6)	266 (13.6)	
N3	5 (0.3)	4 (0.9)	3 (4.6)	12 (0.6)	
Pathological stage					<0.001
I	971 (66.8)	188 (42.7)	28 (43.1)	1,187 (60.6)	
II	233 (16.0)	110 (25.0)	14 (21.5)	357 (18.2)	
III	249 (17.1)	142 (32.3)	23 (35.4)	414 (21.1)	
Histological type					<0.001
Adenocarcinoma	1,272 (84.2)	290 (64.3)	45 (67.2)	1,607 (79.2)	
Squamous cell carcinoma	180 (11.9)	134 (29.7)	19 (28.4)	333 (16.4)	
Other	59 (3.9)	27 (6.0)	3 (4.5)	89 (4.4)	
Adjuvant therapy	97 (6.5)	44 (9.8)	5 (7.5)	146 (7.2)	0.058
Recurrence	405 (26.8)	181 (40.1)	42 (62.7)	628 (31.0)	<0.001
RFS time (months)	44.3 (33.8, 60.9)	38.6 (16.7, 53.8)	35.4 (11.9, 48.6)	42.1 (29.9, 59.3)	<0.001
Lung metastasis	65 (4.3)	20 (4.4)	3 (4.5)	88 (4.3)	0.99
Brain metastasis	87 (5.8)	29 (6.4)	2 (3.0)	118 (5.8)	0.522
Liver metastasis	20 (1.3)	10 (2.2)	1 (1.5)	31 (1.5)	0.40
Bone metastasis	68 (4.5)	34 (7.5)	5 (7.5)	107 (5.3)	0.03

Data are median (IQR) for continuous variables and number (%) for categorical variables. IQR, interquartile range; N, node; RFS, recurrence-free survival; SII, system immune-inflammatory index; T, tumor.

Table S4 Characteristics of SII trajectory groups

Variables	Slow-decreasing (n=1,828)	Sharp-decreasing (n=78)	Rising (n=45)	Total (n=1,951)	P value
Age (years)	59.0 (52.0, 66.0)	59.0 (54.0, 63.8)	67.0 (63.0, 74.0)	59.0 (52.0, 66.0)	<0.001
Male	976 (53.4)	58 (74.4)	36 (80.0)	1,070 (54.8)	<0.001
Preoperative SII	30.2 (18.5, 52.5)	36.5 (21.4, 68.8)	114.1 (37.3, 383.3)	30.7 (18.6, 53.9)	<0.001
Postoperative SII	40.1 (22.7, 76.8)	26.1 (15.6, 36.7)	401.3 (234.1, 681.3)	40.0 (22.6, 80.6)	<0.001
Smoking history	707 (39.3)	43 (55.1)	26 (60.5)	776 (40.4)	0.001
Surgical approach					<0.001
Thoracoscopic resection	1,068 (58.4)	17 (21.8)	13 (28.9)	1,098 (56.3)	
Thoracotomy	760 (41.6)	61 (78.2)	32 (71.1)	853 (43.7)	
Surgical procedure					0.67
Lobectomy	1,487 (81.4)	67 (85.9)	35 (77.8)	1,589 (81.5)	
Segmentectomy	50 (2.7)	0 (0.0)	2 (4.4)	52 (2.7)	
Wedge	149 (8.2)	4 (5.1)	4 (8.9)	157 (8.1)	
Pneumonectomy	141 (7.7)	7 (9.0)	4 (8.9)	152 (7.8)	
Lymph node metastasis	409 (24.2)	40 (55.6)	18 (42.9)	467 (25.9)	<0.001
Lobar location					0.44
Lower	704 (40.3)	33 (44.0)	22 (52.4)	759 (40.8)	
Middle	126 (7.2)	3 (4.0)	2 (4.8)	131 (7.0)	
Upper	915 (52.4)	39 (52.0)	18 (42.9)	972 (52.2)	
T stage					<0.001
T1	818 (44.7)	13 (16.7)	11 (24.4)	842 (43.2)	
T2	686 (37.5)	34 (43.6)	14 (31.1)	734 (37.6)	
T3	188 (10.3)	20 (25.6)	10 (22.2)	218 (11.2)	
T4	136 (7.4)	11 (14.1)	10 (22.2)	157 (8.0)	
N stage					<0.001
N0	1,338 (75.9)	35 (46.7)	24 (57.1)	1,397 (74.3)	
N1	173 (9.8)	15 (20.0)	6 (14.3)	194 (10.3)	
N2	241 (13.7)	25 (33.3)	12 (28.6)	278 (14.8)	
N3	12 (0.7)	0 (0.0)	0 (0.0)	12 (0.6)	
Pathological stage					<0.001
I	1,054 (59.8)	11 (14.7)	10 (23.8)	1,075 (57.2)	
II	330 (18.7)	30 (40.0)	12 (28.6)	372 (19.8)	
III	380 (21.5)	34 (45.3)	20 (47.6)	434 (23.1)	
Histological type					<0.001
Adenocarcinoma	1,446 (79.1)	30 (38.5)	28 (62.2)	1,504 (77.1)	
Squamous cell carcinoma	302 (16.5)	38 (48.7)	12 (26.7)	352 (18.0)	
Other	80 (4.4)	10 (12.8)	5 (11.1)	95 (4.9)	
Adjuvant therapy	140 (7.7)	29 (37.2)	4 (8.9)	173 (8.9)	<0.001
Recurrence	577 (31.6)	48 (61.5)	30 (66.7)	655 (33.6)	<0.001
RFS time (months)	42.0 (29.2, 59.0)	27.1 (8.1, 47.0)	17.1 (6.4, 42.5)	41.3 (26.2, 58.3)	<0.001
Lung metastasis	92 (5.0)	5 (6.4)	1 (2.2)	98 (5.0)	0.59
Brain metastasis	112 (6.1)	13 (16.7)	2 (4.4)	127 (6.5)	0.001
Liver metastasis	30 (1.6)	4 (5.1)	3 (6.7)	37 (1.9)	0.005
Bone metastasis	102 (5.6)	11 (14.1)	7 (15.6)	120 (6.2)	<0.001

Data are median (IQR) for continuous variables and number (%) for categorical variables. IQR, interquartile range; N, node; RFS, recurrence-free survival; SII, system immune-inflammatory index; T, tumor.