Supplementary

Appendix 1 Supplementary

CT scan methodology

This study utilized different CT scanners from two hospitals. All patients with non-small cell lung cancer (NSCLC) underwent non-contrast chest CT scans within two weeks prior to diagnosis, covering the area from the thoracic inlet to the level of both adrenal glands. Detailed information regarding the scanning and reconstruction settings of the four CT scanners can be found in Table S2.

Surgical procedures and postoperative adjuvant chemotherapy

A total of 355 patients participated in this study. The choice of surgical procedure was guided by tumor location, size, and patient-specific factors such as pulmonary function, consistent with current standard clinical practice for resectable NSCLC. Additionally, 191 patients underwent adjuvant postoperative chemotherapy, of whom 172 patients were at pathological Tumor-Node-Metastasis (pTNM) stage II-III and 19 patients were at pTNM stage IB with high-risk factors. The chemotherapy regimens were implemented in accordance with the recommendations of the National Comprehensive Cancer Network (NCCN) Guidelines. Detailed information is presented in the Table S1.

Cut-off values for body composition and inflammatory nutritional index

The surv cutpoint function from the "survminer" package of R software was used in the training set to determine cutoff values for these variables in predicting NSCLC patient recurrence status (Table S3). Figure S3 illustrates the cutoff value determination plots for two of these variables (SII and SMI).

Table S1 Surgical procedures and postoperative adjuvant chemotherapy regimens

Item	Specific Type/Regimen	Number of Cases	n(%)
Surgical procedure	Lobectomy (including bilobectomy)	287	80.8*
	Segmentectomy	43	12.1*
	Wedge resection	25	7.1*
Adjuvant chemotherapy regimen	Cisplatin + pemetrexed	89	46.6**
	Cisplatin + gemcitabine	57	29.8**
	Carboplatin + paclitaxel	45	23.6**

* total case proportion, ** the proportion of total chemotherapy cases

Table S2 CT scanning protocol for patients

Manufacture	SIEMENS	SIEMENS	GE	SIEMENS
CT scanner	CT64	CT 64	CT64	CT128
Scanner mode	SOMATOM Definition Edge	SOMATOM Definition AS	Revolution Frontier	SOMATOM Definition Edge
Tube voltage (kV)	120	120	120	120
Tube current (mA)	200	200	300	200
Rotation time (s)	0.5	0.5	0.5	0.5
Collimation (mm)	64*0.6	64*0.6	64*0.625	64*0.6
Slice thickness (mm)	1	1	1.25	1
Matrix	512 × 512	512 × 512	512 × 512	512 × 512
Field of view (mm)	350	350	350	350
Kernel	B30f	B30f	standard	B30f

CT, computed tomography.

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Table S3 Cut-off values for body composition and blood parameters

Variable	Cut-off values	
	Male	Female
SAT (cm^2)	14.74	82.27
SM (cm^2)	113.1	62.95
IMAT (cm^2)	10.24	7.727
SATD (HU)	–71.07	–90.93
SMD (HU)	42.3	38.31
IMATD (HU)	–62.69	–64.72
IMAC	–0.58	–0.54
SATI (cm^2/m^2)	8.67	33.99
SMI (cm^2/m^2)	41.45	35.22
IMATI (cm^2/m^2)	1.74	4.07
GGT	27.37	
AST	35.04	
ALT	13.21	
ALP	70.53	
AGR	1.53	
AAPR	0.34	
dNLR	1.99	
PLR	109.79	
PNI	50.3	
SII	831.19	
LA	57.72	
ALI	416.75	
LMR	2.74	
MAR	0.0097	
SIRI	0.897	

HU, Hounsfield unit; SAT, subcutaneous adipose tissue; SM, skeletal Muscle; IMAT, intermuscular adipose tissue; SATD, subcutaneous adipose tissue density; SMD, skeletal muscle density; IMATD, intermuscular adipose tissue density; IMAC, intramuscular adipose content; SATI, subcutaneous adipose tissue index; SMI, skeletal muscle index; IMATI, intermuscular adipose tissue index; AGR, albumin-to-globulin Ratio; AAPR, albumin-to-alkaline phosphatase ratio; dNLR, derived neutrophil-to-lymphocyte ratio; PLR, platelet-to-lymphocyte ratio; PNI, prognostic nutritional index; SII, systemic immune-inflammation Index.

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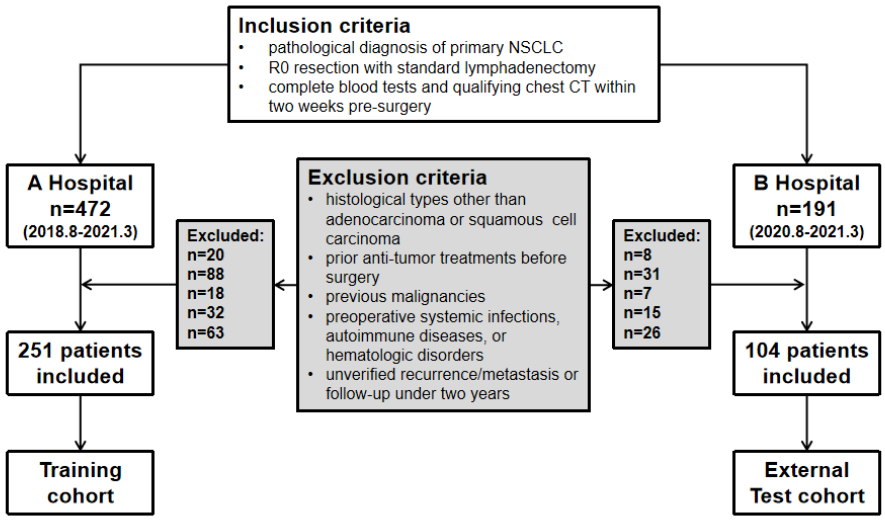
I.



II.

Figure S1 I. Flowchart of the patient selection process. II. Body composition evaluations of analysis of axial CT images at the level of the first lumbar vertebra for a male patient. (A) Subcutaneous fat area (in red), (B) Skeletal muscle area (in green), (C) Intermuscular fat area (in blue).

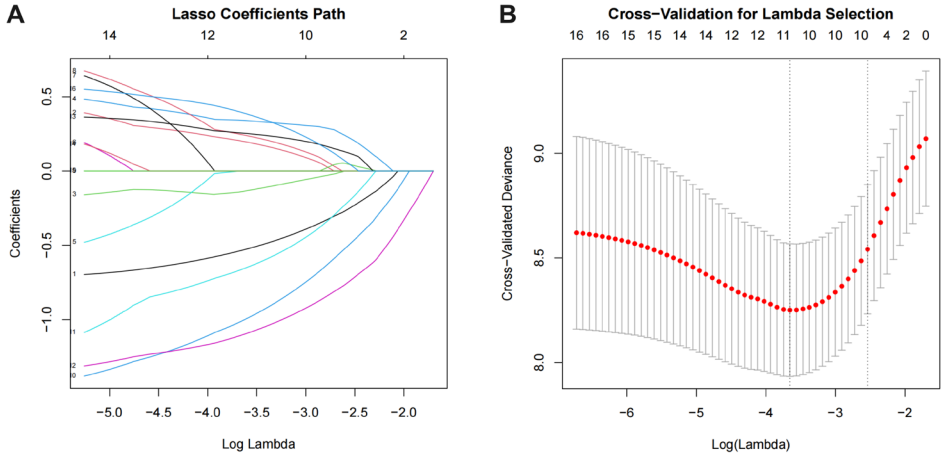


Figure S2 Selecting influence factors by using LASSO regression model. (A) LASSO coefficient curves for 16 predictors. (B) Identification of the best punishment coefficient lambda in LASSO regression model.

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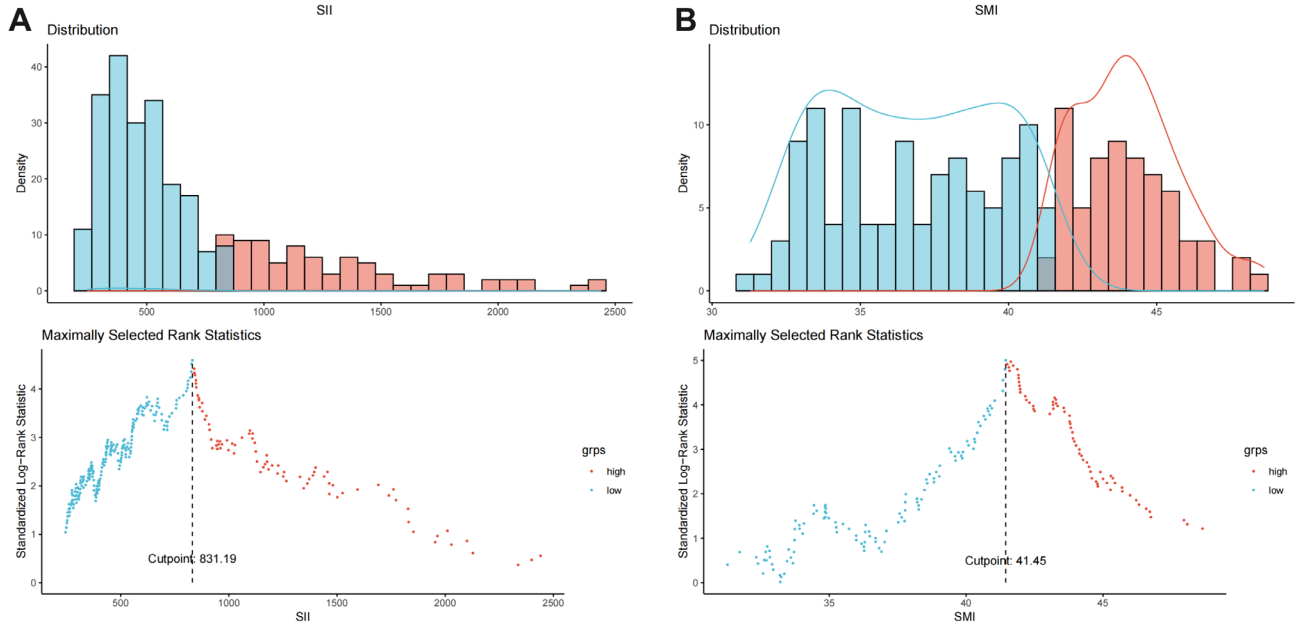

Figure S3 Cutoff value determination plots for the variables SII and SMI (male). SII, systemic immune-inflammation Index; SMI, skeletal muscle index.

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