

**Table S1** Lung cancer grading system

Grade 1: lepidic components predominant with &lt;20% high-grade patterns

Grade 2: acinar or papillary components predominant with &lt;20% high-grade patterns

Grade 3: high-grade patterns &gt;20%

High-grade patterns include solid, micropapillary, and complex glandular components.

**Table S2** Clinical and radiological characteristics in the training and test cohort

Characteristics	Training cohort (n=182)	Test cohort (n=76)	P value
Sex			0.437
Male	79 (43.4)	37 (48.7)	
Female	103 (56.6)	39 (51.3)	
Age (years) <sup>†</sup>	59 [52–66]	58 [50–63]	0.236
Smoking status			0.390
Non-smoker	125 (68.7)	48 (63.2)	
Smoker	57 (31.3)	28 (36.8)	
Diameter (cm) <sup>†</sup>	1.9 [1.5–2.4]	2.0 [1.5–2.5]	0.460
Nodule type			0.283
pGGN	11 (6.0)	1 (1.3)	
PSN	71 (39.0)	31 (40.8)	
SN	100 (54.9)	44 (57.9)	
Boundaries			0.765
Clear	163 (89.6)	69 (90.8)	
Fuzzy	19 (10.4)	7 (9.2)	
Bronchiectasis			0.677
Absent	176 (96.7)	75 (98.7)	
Present	6 (3.3)	1 (1.3)	
Bubble-like lucency			0.780
Absent	114 (62.6)	49 (64.5)	
Present	68 (37.4)	27 (35.5)	
Emphysema			0.730
Absent	154 (84.6)	63 (82.9)	
Present	28 (15.4)	13 (17.1)	
Deep lobulation			0.646
Absent	155 (85.2)	63 (82.9)	
Present	27 (14.8)	13 (17.1)	
Necrosis			0.840
Absent	141 (77.5)	58 (76.3)	
Present	41 (22.5)	18 (23.7)	
Pleural retraction			0.872
Absent	93 (51.1)	38 (50.0)	
Present	89 (48.9)	38 (50.0)	
Sharpness			0.558
Round	130 (71.4)	57 (75.0)	
Irregular	52 (28.6)	19 (25.0)	
Invasive lobe			0.215
Right upper lobe	58 (31.9)	31 (40.8)	
Right middle lobe	17 (9.3)	3 (3.9)	
Right lower lobe	37 (20.3)	9 (11.8)	
Left upper lobe	46 (25.3)	21 (27.6)	
Left lower lobe	24 (13.2)	12 (15.8)	
Location			0.465
Center	47 (25.8)	23 (30.3)	
Periphery	135 (74.2)	53 (69.7)	
Lymph node involvement			>0.999
No	91 (50.0)	38 (50.0)	
Yes	91 (50.0)	38 (50.0)	

Unless otherwise indicated data in parentheses are presented as percentages. <sup>†</sup>, data in brackets are interquartile ranges. pGGN, pure ground glass nodule; PSN, part solid nodule; SN, solid nodule.

**Table S3** Selected radiomics features

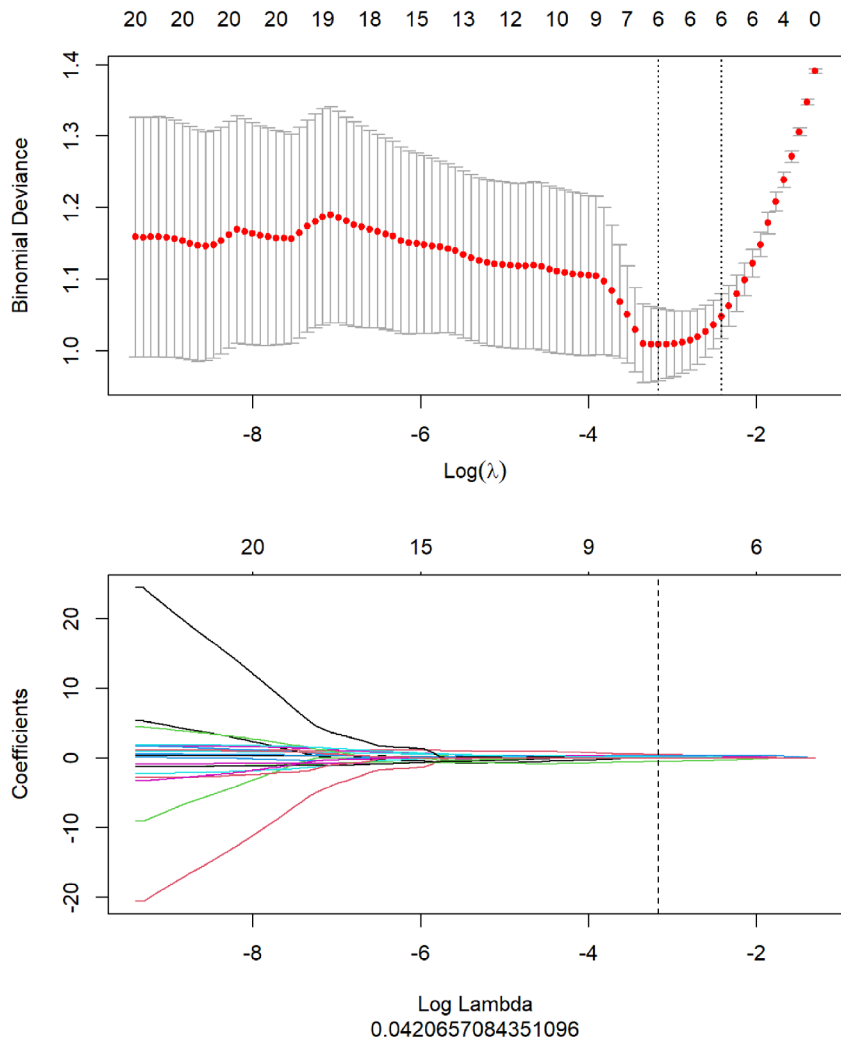
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Minimum redundancy maximum relevance (n=20)

- [1] original\_glszm\_LargeAreaHighGrayLevelEmphasis
- [2] original\_firstorder\_90Percentile
- [3] original\_glszm\_ZoneVariance
- [4] original\_gldm\_DependenceVariance
- [5] original\_ngtdm\_Coarseness
- [6] original\_glszm\_SizeZoneNonUniformity
- [7] original\_glcm\_ClusterProminence
- [8] original\_gldm\_LowGrayLevelEmphasis
- [9] original\_gldm\_DependenceNonUniformityNormalized
- [10] original\_glcm\_ClusterShade
- [11] original\_glcm\_MCC
- [12] original\_firstorder\_Energy
- [13] original\_firstorder\_Skewness
- [14] original\_gldm\_GrayLevelNonUniformity
- [15] original\_gldm\_SmallDependenceLowGrayLevelEmphasis
- [16] original\_glrIm\_RunVariance
- [17] original\_glszm\_GrayLevelNonUniformityNormalized
- [18] original\_gldm\_LargeDependenceHighGrayLevelEmphasis
- [19] original\_glrIm\_LongRunLowGrayLevelEmphasis
- [20] original\_ngtdm\_Strength

Least absolute shrinkage and selection operator (n=6)

- [1] original\_firstorder\_90Percentile
  - [2] original\_gldm\_DependenceVariance
  - [3] original\_glszm\_SizeZoneNonUniformity
  - [4] original\_glcm\_ClusterProminence
  - [5] original\_gldm\_DependenceNonUniformityNormalized
  - [6] original\_glcm\_MCC
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**Figure S1** Radiomics feature selection.