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Retrospective Study

Different types of tumor microvessels in stage I-III A squamous cell lung cancer and their clinical significance

Senchukova M et al. A. Tumor microvessels in squamous cell lung cancer

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Presence	14.43±5.4	0.71	4.81±3.6	0.41	7.12±3.3	0.61	3.18±1.7	0.61	2.05±1.4	0.33	1.16±1.1	0.19
Absence	13.62±4.2		3.85±2.9		8.02±4.2		3.12±1.9		2.22±1.1		1.28±0.9	

Abbreviations: ADCs - atypical dilated capillaries; DCs - dilated capillaries; KSCC - keratinizing squamous cell carcinoma; LVD - lymphatic vessels density; LVI - lymphovascular invasion; MVD - microvascular density; PDN - podoplanin; NKSCC - nonkeratinizing squamous cell carcinoma; SPELs - structures with partial endothelial lining. Notes - * the differences between groups are statistically significant, p<0,05

Supplementary Table 2 The frequency of DCs with weak expression of CD34, DCs of contact type, capillaries in the tumor solid component and LVs in lymphoid and polymorphic cell infiltrates depending on the LSCC clinical and pathological characteristics and the disease prognosis

	DCs with weak expression of CD34					DCs of "contact type"					The capillaries in the tumor solid component					LVs in lymphoid and polymorphic cell infiltrates					
	absence		presence		p	absence		presence		p	absence		presence		p	absence		presence		p	
	n	%	n	%		n	%	n	%		n	%	n	%		n	%	n	%		
Age																					
<60 л	12	60,0	8	40,0	0,67	7	35,0	13	65,0	0,53	16	80,0	4	20,0	0,28	7	35,0	13	65,0	0,52	
60-70	20	60,6	13	39,4		16	48,5	17	51,5		20	60,6	13	39,4		14	42,4	19	57,6		
> 70	4	44,4	5	55,6		3	33,3	6	66,7		7	77,8	2	22,2		2	22,2	7	77,8		
Tumor localization																					
Central	14	58,3	10	41,7	0,97	13	54,2	11	45,8	0,12	12	50,0	12	50,0	0,009*	10	41,7	14	58,3	0,55	
Peripheral	22	57,9	16	42,1		13	34,2	25	65,8		31	81,6	7	18,4		13	34,2	25	65,8		
T stage																					
T1a	7	87,5	1	12,5	0,28	3	37,5	5	62,5	0,36	7	87,5	1	12,5	0,01*	1	12,5	7	87,5	0,054	
T1b	2	33,3	4	66,7		2	33,3	4	66,7		2	33,3	4	66,7		3	50,0	3	50,0		
T2a	20	58,8	14	41,2		18	52,9	16	47,1		28	82,4	6	17,6		14	41,2	20	58,8		
T2b	2	40,0	3	60,0		1	20,0	4	80,0		2	40,0	3	60,0		4	80,0	1	20,0		
T3	5	55,6	4	44,4		2	22,2	7	77,8		4	44,4	5	55,6		1	11,1	8	88,9		
N stage																					
N0	14	63,6	8	36,4	0,72	6	27,3	16	72,7	0,09	18	81,8	4	18,2	0,19	7	31,8	15	68,2	0,79	
N1	15	57,7	11	42,3		15	57,7	11	42,3		15	57,7	11	42,3		10	38,5	16	61,5		
N2	7	50,0	7	50,0		5	35,7	9	64,3		10	71,4	4	28,6		6	42,9	8	57,1		
Stage																					
I	12	60,0	8	40,0	0,94	6	30,0	14	70,0	0,04*	17	85,0	3	15,0	0,12	5	25,0	15	75,0	0,10	
II	13	59,1	9	40,9		14	63,6	8	36,4		15	68,2	7	31,8		12	54,6	10	45,4		
III	11	55,0	9	45,0		6	30,0	14	70,0		11	55,0	9	45,0		6	30,0	14	70,0		
Histology																					
KSCC	10	45,5	12	54,5	0,14	11	50,0	11	50,0	0,34	18	81,8	4	18,2	0,11	7	31,8	15	68,2	0,52	
NKSCC	26	65,0	14	35,0		15	37,5	25	62,5		25	62,5	15	37,5		16	40,0	24	60,0		
Grade																					
G1	22	56,4	17	43,6	0,48	15	38,5	24	61,5	0,73	29	74,4	10	25,6	0,045*	15	38,5	24	61,5	0,88	
G2	11	68,8	5	31,2		8	50,0	8	50,0		12	75,0	4	25,0		6	37,5	10	62,5		
G3	3	42,9	4	57,1		3	42,9	4	57,1		2	28,6	5	71,4		2	28,6	5	71,4		
LVI																					
Absence	11	64,7	6	35,3	0,51	6	35,3	11	64,7	0,51	12	70,6	5	29,4	0,89	9	52,9	8	47,1	0,11	
Presence	25	55,6	20	44,4		20	44,4	25	55,6		31	68,9	14	31,1		14	31,1	31	68,9		
Recurrence																					
Presence	10	38,5	16	61,5	0,008	10	38,5	16	61,5	0,64	14	53,8	12	46,2	0,02*	10	38,5	16	61,5	0,85	

Absence	26	72.2	10	27.8	*	16	44.4	20	55.6	29	80.6	7	19.4	13	36.1	23	63.9
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Notes - * the differences between groups are statistically significant, $p < 0,05$

Abbreviations: DCs - dilated capillaries; KSCC - keratinizing squamous cell carcinoma; LVs - lymphatic vessels; LVI - lymphovascular invasion; NKSCC - nonkeratinizing squamous cell carcinoma

Supplementary Table 3 The correlations between the features of the tumor parenchymal and stromal components and clinical and pathological characteristics and prognosis of LSCC

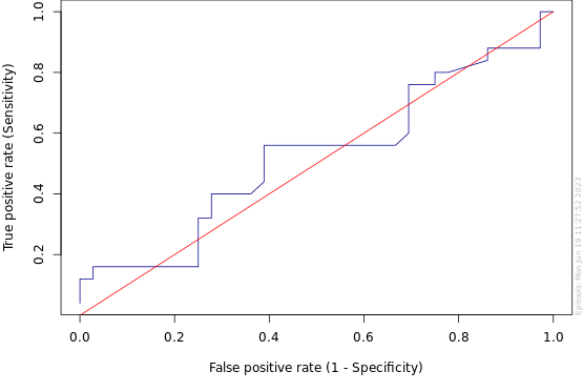
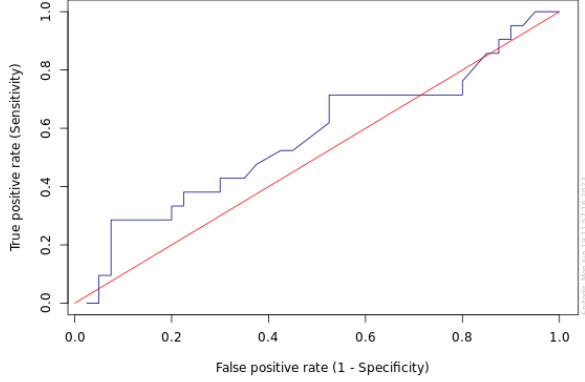
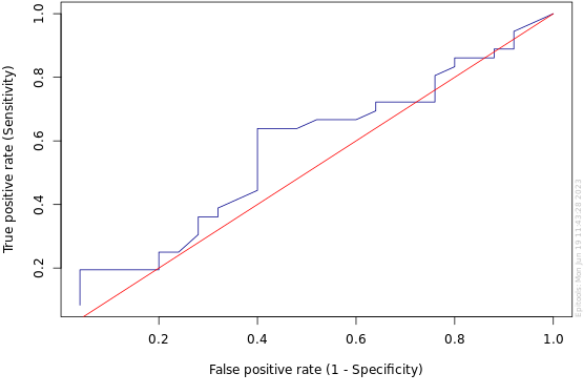
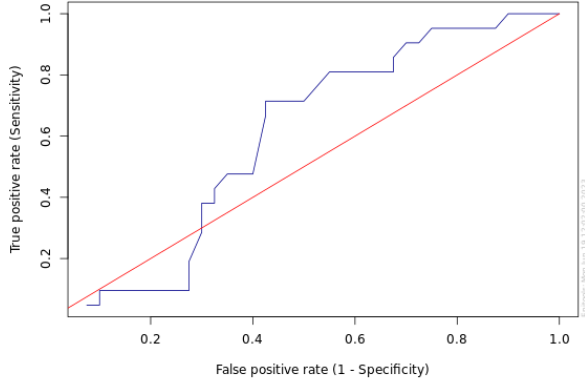
	The presence of LFFCT in the tumor stroma					Fragmentation in the tumor solid component					Peritumoral retraction clefting					Tumor spread in the AAS					
	absent		presence		p	absent		presence		p	absent		presence		p	absent		presence		p	
	n	%	n	%		n	%	n	%		n	%	n	%		n	%	n	%		
Age																					
<60 л	11	55.0	9	45.0	0.09	6	30.0	14	70.0	0.18	5	25.0	15	75.0	0.22	8	40.0	12	60.0	0.64	
60-70	14	42.2	19	57.8		9	27.3	24	72.7		15	45.5	18	54.5		10	30.3	23	69.7		
> 70	1	11.1	8	88.9		0	0	9	100		3	33.3	6	66.7		4	44.4	5	55.6		
Tumor localization																					
Central	10	41.7	14	58.3	0.97	4	16.7	20	83.3	0.27	10	41.7	14	58.3	0.22	14	58.3	10	41.7	0.003	
Peripheral	16	42.1	22	57.9		11	28.9	27	71.1		12	31.5	26	68.5		8	21.1	30	78.9	*	
T stage																					
T1a	3	37.5	5	62.5	0.73	4	50.0	4	50.0	0.10	0	0	8	100	0.27	2	25.0	6	75.0	0.47	
T1b	1	16.7	5	83.3		3	50.0	3	50.0		3	50.0	3	50.0		1	16.7	5	83.8		
T2a	16	47.1	18	52.9		7	20.6	27	79.4		14	41.2	20	58.8		13	38.2	21	61.8		
T2b	2	40.0	3	60.0		0	0	5	100		1	20.0	4	80.0		1	20.0	4	80.0		
T3	4	44.4	5	55.6		1	11.1	8	88.9		3	33.3	6	66.7		5	55.6	4	44.4		
N stage																					
N0	8	36.4	14	63.6	0.54	8	36.4	14	63.6	0.24	10	45.5	12	54.5	0.049	2	9.1	20	90.9	0.006	
N1	13	50.0	13	50.0		5	19.2	21	80.8		10	38.5	16	61.5	*	13	50.0	13	50.0	*	
N2	5	35.7	9	64.3		2	14.3	12	85.7		3	21.4	11	78.6		7	50.0	7	50.0		
Stage																					
I	6	30.0	14	70.0	0.27	8	40.0	12	60.0	0.13	9	45.0	11	55.0	0.15	2	10.0	18	90.0	0.01*	
II	12	54.6	10	45.4		4	18.2	18	81.8		10	45.4	12	54.6		10	45.5	12	54.5		
III	8	40.0	12	60.0		3	15.0	17	85.0		5	25.0	15	75.0		10	50.0	10	50.0		
Histology																					
KSCC	7	33.3	14	66.7	0.34	7	33.3	14	66.7	0.44	7	33.3	14	66.7	0.80	6	28.6	15	71.4	0.31	
NKSCC	19	46.3	22	53.7		8	20.0	33	80.0		13	31.7	28	68.3		16	39.0	25	61.0		
Grade																					
G1	15	38.5	24	61.5	0.36	8	20.5	31	79.5	0.09	11	28.2	28	71.8	0.30	15	38.5	24	61.5	0.46	
G2	9	56.3	75	43.7		3	18.7	13	81.3		4	25.0	12	75.0		6	37.5	10	62.5		
G3	2	28.6	5	71.4		4	57.1	3	42.9		3	42.8	4	57.2		1	14.3	6	85.7		
LVI																					
Absence	14	40.0	21	60.0	0.75	8	22.9	27	77.1	0.78	4	23.5	13	76.5	0.67	15	44.1	19	55.9	0.09	
Presence	12	44.4	15	55.6		7	25.9	20	74.1		12	26.7	33	73.3		7	25.0	21	75.0		

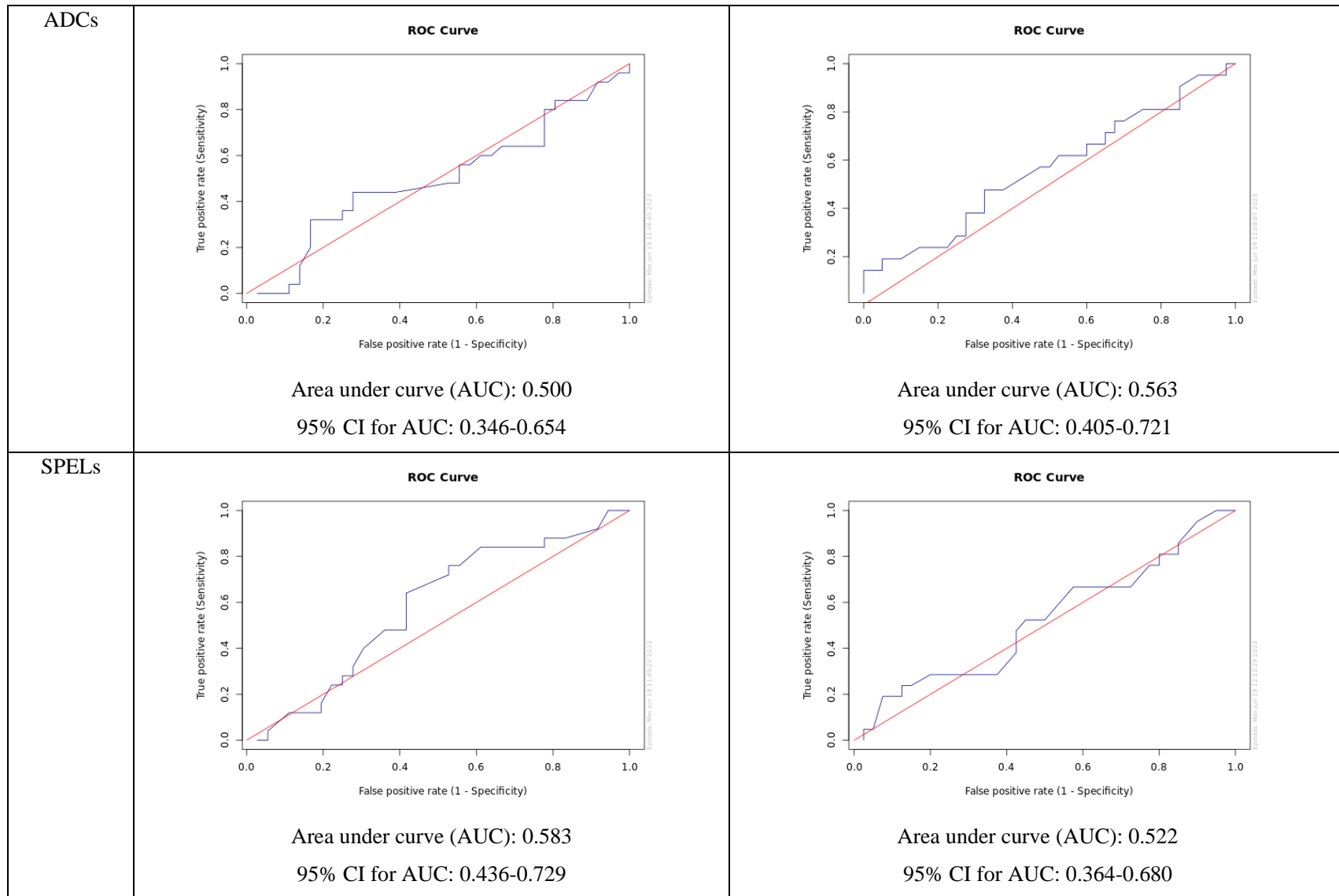
Recurrence

Presence	6	23.1	20	76.9	0.01	4	15.4	22	84.6	0.17	11	44.0	14	56.0	0.27	12	48.0	13	52.0	0.09
Absence	20	55.6	16	44.4	*	11	30.6	25	69.4		12	32.4	25	67.6		10	27.0	27	73.0	

Notes - * the differences between groups are statistically significant, $p < 0,05$

Abbreviations: KSCC - keratinizing squamous cell carcinoma; LVI - lymphovascular invasion; NKSCC - nonkeratinizing squamous cell carcinoma

Indicators	The risk of lung squamous cell carcinoma recurrence	The risk of metastases to regional lymph nodes
MVD	<p data-bbox="779 228 875 244" style="text-align: center;">ROC Curve</p>  <p data-bbox="629 683 987 762" style="text-align: center;">Area under curve (AUC): 0.523 95% CI for AUC: 0.369-0.677</p>	<p data-bbox="1541 228 1637 244" style="text-align: center;">ROC Curve</p>  <p data-bbox="1391 683 1749 762" style="text-align: center;">Area under curve (AUC): 0.568 95% CI for AUC: 0.408-0.728</p>
DCs	<p data-bbox="779 798 875 813" style="text-align: center;">ROC Curve</p>  <p data-bbox="629 1252 987 1332" style="text-align: center;">Area under curve (AUC): 0.561 95% CI for AUC: 0.413-0.710</p>	<p data-bbox="1541 798 1637 813" style="text-align: center;">ROC Curve</p>  <p data-bbox="1391 1252 1749 1332" style="text-align: center;">Area under curve (AUC): 0.589 95% CI for AUC: 0.444-0.733</p>



Supplementary Figure 1 The results of ROC analysis to assess the predictive value of MVD, the density of DCs, ADCs and SPELs