

The Role of MonoTotal in Relation to other Cytokeratins for Primary Diagnosis of Patients with Non Small Cell Lung Cancer (NSCLC)

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Aim of the study

MonoTotal is a new cytokeratin tumor marker assay intended for efficient management of patients with NSCLC. The aim of the study was to evaluate the clinical importance of preoperative values of MonoTotal for primary diagnosis of NSCLC in comparison to other conventionally used cytokeratin tumor markers.

Characteristics of cytokeratin tumor markers

Tumor marker	Abbreviation	Cytokeratin fragment
MonoTotal	MT	8, 18, 19
Tissue specific polypeptide antigen	TPS	18 (concerning M3)
Tissue polypeptide antigen	TPA	8, 18
Fragment of cytokeratin	CYFRA 21.1	19

Groups of patients

Cancer group

■ 69 patients with NSCLC, stages Ia – IIIb, operated on at Dept. of Surgery, Faculty Hospital Pilsen

- 20 patients with adenocarcinoma (AdenoCA)
- 49 patients with squamous cell carcinoma (SQCLC)

Control group

■ 60 age-matched healthy individuals

Methods

Tumor marker	Methods	Producer	Units	Cut-off
MT	IRMA	IDL	IU/L	78
TPS	IRMA	IDL	IU/L	90
TPA	IRMA	DiaSorin	IU/L	100
CYFRA 21.1	TRACE	Brahms	µg/L	2.5

Results

Descriptive statistics of individual groups

Group	Median, (Min – Max), p-value			
	MT	TPS	TPA	CYFRA 21.1
Healthy individuals	65.8 (25.5-139.5)	26.7 (0-146.5)	13.4 (0 -100.1)	0.9 (0.1-2.9)
NSCLC (AdenoCA+SQCLC)	163.9 (10.0-2167.8) p<0.0001	86.0 (10.0-768.0) p<0.0002	60.5 (10.0-409.0) p<0.0001	2.3 (0.4-64.6) p<0.0001
SQCLC	173.7 (23.6-2167.0) p<0.0001	92.0 (10.0-768.0) p<0.0001	64.0 (10.0-290.0) p<0.0001	2.8 (0.6-64.6) p<0.0001
AdenoCA	119.3 (10.4-1435.0) p<0.0017	47.5 (10.0-550.0) p<0.3047	42.5 (11.0-409.0) p<0.0401	1.3 (0.4-34.3) p<0.0589

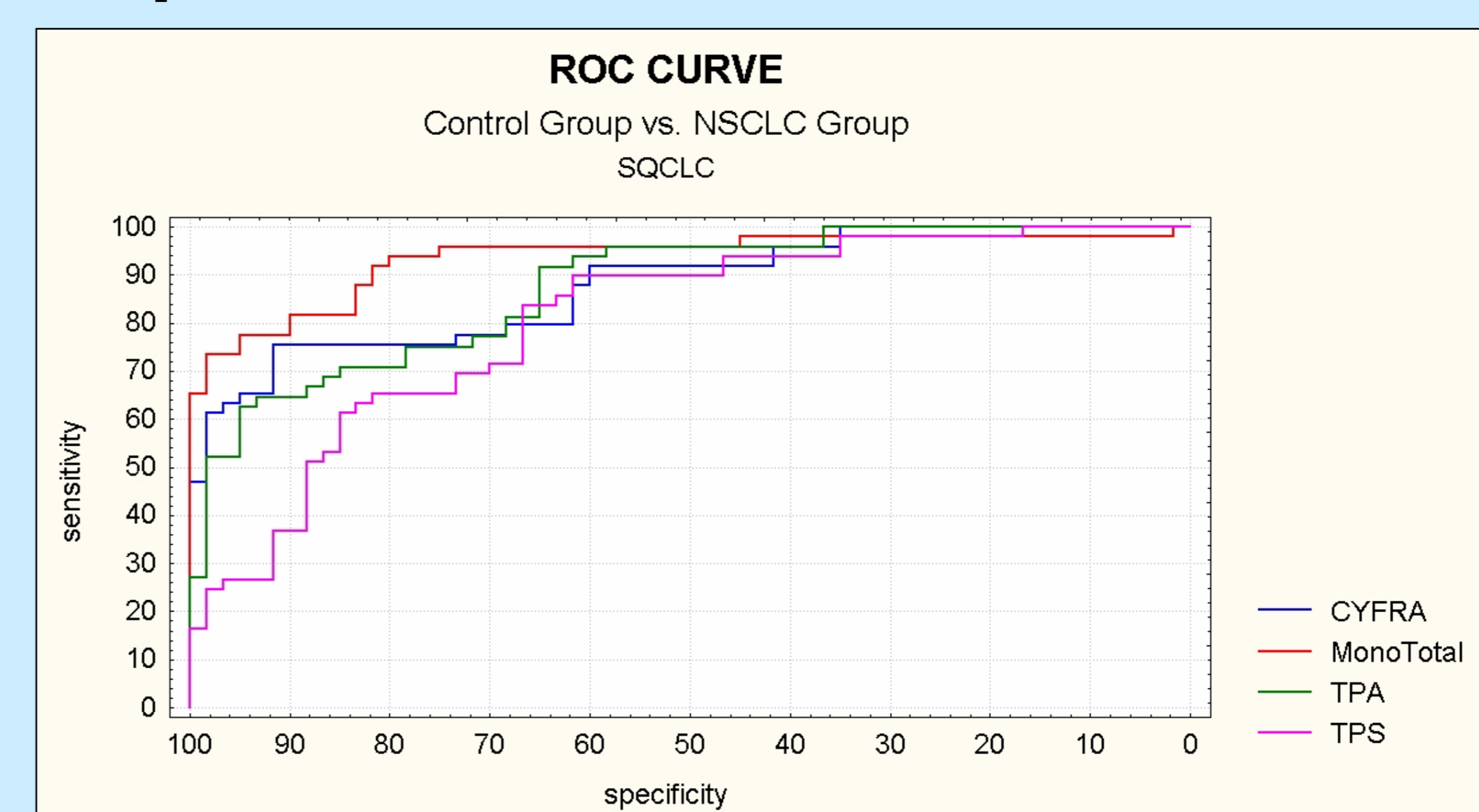
Sensitivities according to histological types of NSCLC at 95% specificity

Tumor Marker	SQCLC		AdenoCA	
	Sensitivity (95% spec.)	AUC	Sensitivity (95% spec.)	AUC
MT	76%	0.9442	55%	0.8016
TPS	27%	0.7790	20%	0.6241
TPA	63%	0.7809	45%	0.6791
CYFRA 21-1	65%	0.8544	30%	0.6716

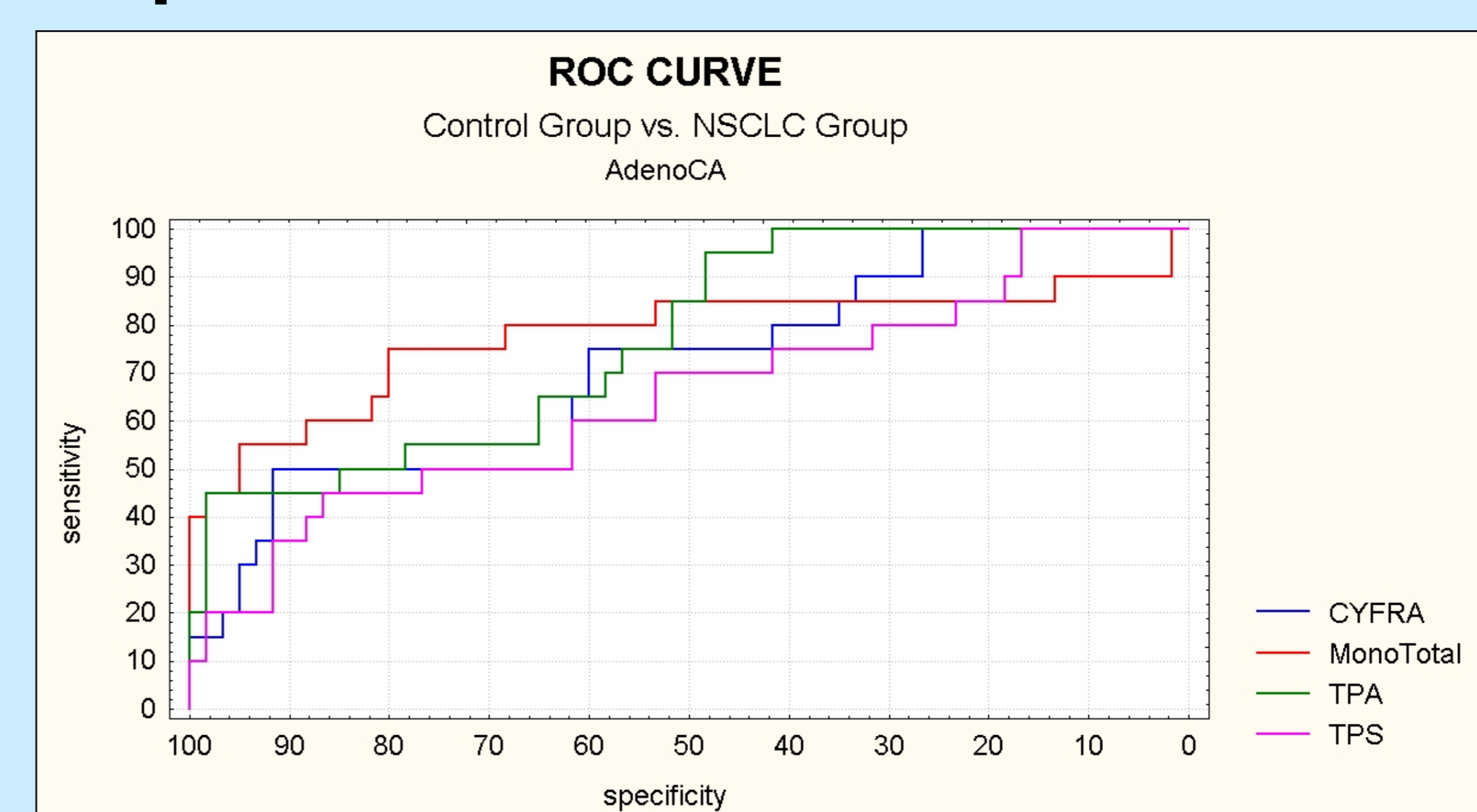
Sensitivities of tumor markers for NSCLC (AdenoCA+SQCLC)

Tumor marker	Sensitivity (95 % spec.)	AUC
MT	71%	0.8957
TPS	25%	0.7342
TPA	53%	0.7509
CYFRA 21.1	51%	0.8015

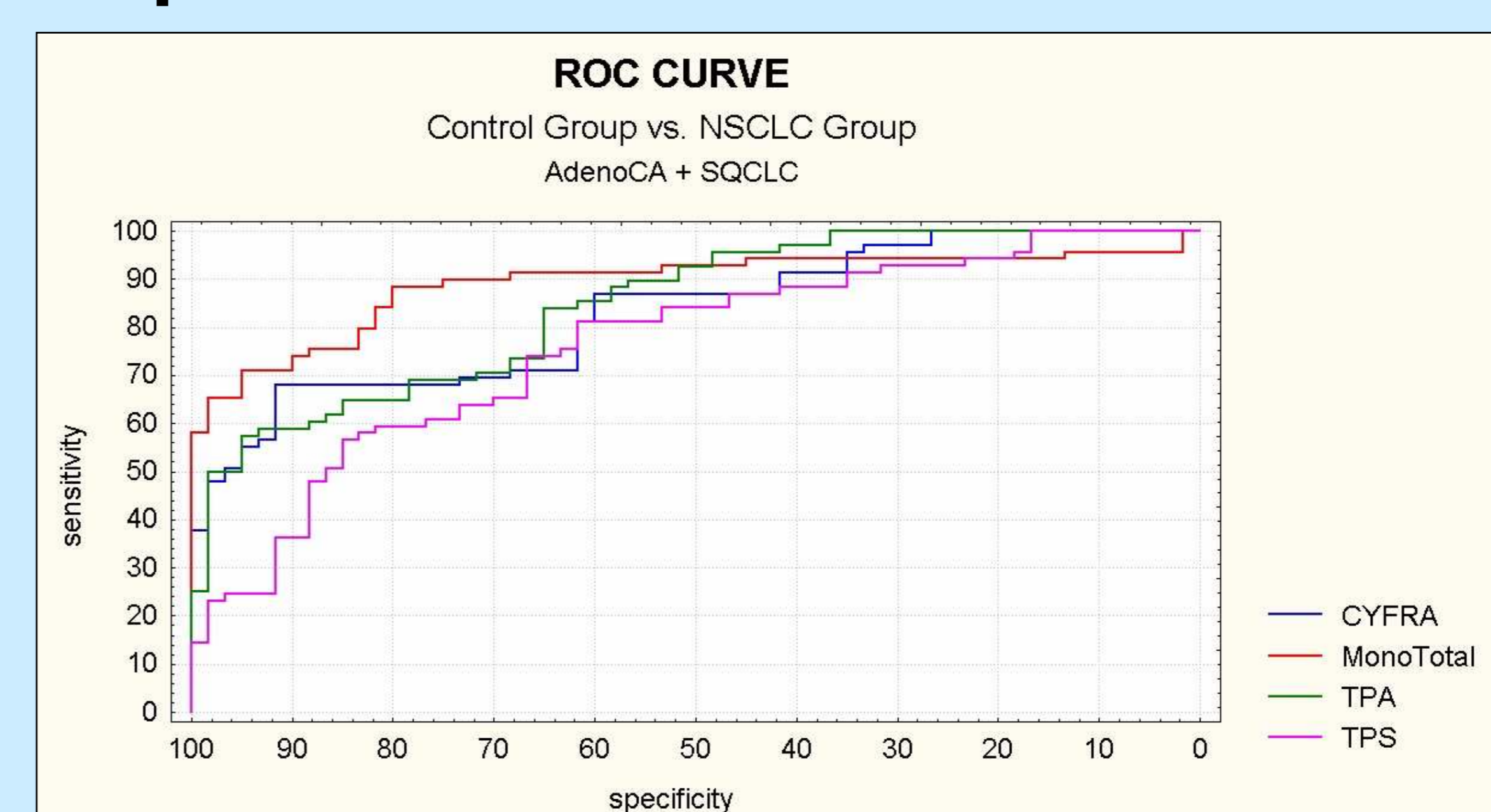
Graph 1



Graph 2



Graph 3



Conclusion

MonoTotal in patients with NSCLC - primary diagnosis:

- Significantly higher values in sera (in comparison with other cytokeratins)
- More sensitive than other conventionally used tumor markers
- Especially elevated in squamous cell carcinoma