Supplemental material

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Suppl. Table 1 *Correlation matrix showing the association of ECM biomarkers and lactate dehydrogenase (LDH) at baseline.*

		Age	LDH	PRO-C3	PC3X	C4G	C3M	C4M
LDH	Pearson Correlation	-0.03						
	Sig. (2-tailed)	0.743						
	N	107						
PRO-C3	Pearson Correlation	0.03	0.56					
	Sig. (2-tailed)	0.724	<0.0001****					
	N	107	107					
PC3X	Pearson Correlation	-0.06	0.41	0.60				
	Sig. (2-tailed)	0.532	<0.0001****	<0.0001****				
	N	107	107	107				
C4G	Pearson Correlation	-0.03	-0.11	-0.07	0.04			
	Sig. (2-tailed)	0.757	0.279	0.479	0.699			
	N	106	106	106	106			
C3M	Pearson Correlation	0.05	0.06	0.11	0.27	0.22		
	Sig. (2-tailed)	0.642	0.514	0.277	0.005**	0.027*		
	N	107	107	107	107	106		
C4M	Pearson Correlation	0.11	0.18	0.11	0.28	0.06	0.86	
	Sig. (2-tailed)	0.274	0.060	0.257	0.003**	0.524	<0.0001****	
	N	107	107	107	107	106	107	
VICM	Pearson Correlation	0.03	-0.13	-0.04	0.18	0.01	0.21	0.26
	Sig. (2-tailed)	0.730	0.176	0.700	0.069	0.928	0.034*	0.006**
	N	107	107	107	107	106	107	107

Pearson correlation. Abbreviations: significance (sig.), number (N).

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Suppl. Table 2 *Hazard ratios of the effects of nivolumab versus pembrolizumab in terms of progression-free survival (PFS) and overall survival (OS) by ECM biomarkers divided in low (Q1-Q3) and high (Q4) subgroups*

Factor	Test variable	Events /total cases	PFS Nivo vs Pembro HR (95% CI)	P-value	Events /total cases	OS Nivo vs Pembro HR (95% CI)	P-value
PRO-C3	4.0-12.5 ng/ml, Q1-Q3	45/79	0.67 (0.36-1.24)	0.206	25/80	0.99 (0.44-2.22)	0.974
	12.6-84.7 ng/ml, Q4	21/27	0.48 (0.20-1.15)	0.099	15/27	0.34 (0.12-1.01)	0.053
PC3X	1.2-7.6 ng/ml, Q1-Q3	44/79	0.51 (0.27-0.96)	0.038*	26/80	0.60 (0.26-1.37)	0.224
	7.6-30.2 ng/ml, Q4	22/27	0.99 (0.43-2.28)	0.974	14/27	0.85 (0.30-2.43)	0.765
C4G	7.8-27.3 ng/ml, Q1-Q3	44/79	0.88 (0.48-1.61)	0.686	31/80	0.74 (0.36-1.53)	0.416
	27.4-125.7 ng/ml, Q4	21/26	0.48 (0.11-2.08)	0.324	8/26	0.65 (0.08-5.28)	0.686
C3M	8.2-19.5 ng/ml, Q1-Q3	45/79	0.74 (0.40-1.35)	0.321	29/80	0.79 (0.38-1.66)	0.533
	19.6-36.0 ng/ml, Q4	21/27	0.48 (0.18-1.27)	0.137	11/27	0.61 (0.16-2.36)	0.471
C4M	8.8-38.0 ng/ml, Q1-Q3	47/79	0.73 (0.41-1.33)	0.306	29/80	0.77 (0.36-1.64)	0.492
	38.8-87.1 ng/ml, Q4	19/27	0.48 (0.18-1.26)	0.138	11/27	0.63 (0.18-2.16)	0.457
VICM	1.0-23.4 ng/ml, Q1-Q3	48/79	0.64 (0.36-1.16)	0.141	30/79	0.74 (0.35-1.57)	0.433
	23.7-132.3 ng/ml, Q4	18/27	0.70 (0.25-1.99)	0.513	10/28	0.67 (0.17-2.61)	0.566

HR were calculated by univariate Cox regression analysis. Abbreviations: 95% confidence interval (95% CI), hazard ratio (HR). Significance is marked with stars.

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Suppl. Table 3 *Correlation matrix showing the association of baseline and week six measurements of the ECM biomarkers*

	PRO-C3	PC3X	C4G	C3M	C4M	VICM
Pearson Correlation	0.68	0.67	0.83	0.72	0.70	0.45
Sig. (2-tailed)	<0.0001****	<0.0001****	<0.0001****	<0.0001****	<0.0001****	<0.0001****
N	94	94	93	94	94	94

Pearson correlation was used. Abbreviations: Sig significance (sig.), number (N).