

Supplementary Table S4

Univariate Cox regression analysis of the progression risk scores and multivariable analysis with the potential predictor variables and time-to-progression

Variable	Category	HR	95% CI	P	C-index / corr. C-index
EAU risk groups with the WHO 1973 classification	High and very high risk vs. low and intermediate risk (Ref.)	3.814	(1.272-11.430)	0.017*	0.684 / 0.684
<MODEL 1 EAU 1973>				0.030*	0.699 / 0.669
EAU risk groups with the WHO 1973 classification	High and very high risk vs. low and intermediate risk (Ref.)	3.167	(0.963-10.416)	0.058	
HER2 gene amplification	Amplified vs. non-amplified (Ref.)	2.046	(0.511-8.192)	0.312	
<MODEL 2 EAU 1973>				<0.001*	0.784 / 0.767
EAU risk groups with the WHO 1973 classification	High and very high risk vs. low and intermediate risk (Ref.)	1.989	(0.610-6.485)	0.254	
Chromosome 17 polysomy	≥2.25 vs. <2.25 signal/cell (Ref.)	5.639	(1.600-19.868)	0.007*	
<MODEL 3 EAU 1973>				0.003*	0.725 / 0.704
EAU risk groups with the WHO 1973 classification	High and very high risk vs. low and intermediate risk (Ref.)	2.333	(0.673-8.085)	0.182	
Chromosome 17 high polysomy	≥3.45 vs. <3.45 signal/cell (Ref.)	4.722	(1.350-16.525)	0.015*	
<MODEL 4 EAU 1973>				<0.001*	0.771 / 0.758
EAU risk groups with the WHO 1973 classification	High and very high risk vs. low and intermediate risk (Ref.)	2.777	(0.911-8.465)	0.073	
Distinct highly polysomic cell population	Yes vs. No (Ref.)	5.364	(1.466-19.627)	0.011*	
EAU risk groups with the WHO 2004/2016 classification	High and very high risk vs. low and intermediate risk (Ref.)	7.086	(1.955-25.680)	0.003*	0.741 / 0.739
<MODEL 1 EAU 2004/2016>				0.003*	0.755 / 0.735
EAU risk groups with the WHO 2004/2016 classification	High and very high risk vs. low and intermediate risk (Ref.)	6.302	(1.654-24.016)	0.007*	
HER2 gene amplification	Amplified vs. non-amplified (Ref.)	1.679	(0.445-6.338)	0.445	
<MODEL 2 EAU 2004/2016>				<0.001*	0.793 / 0.788
EAU risk groups with the WHO 2004/2016 classification	High and very high risk vs. low and intermediate risk (Ref.)	3.800	(0.937-15.410)	0.062	
Chromosome 17 polysomy	≥2.25 vs. <2.25 signal/cell (Ref.)	4.197	(1.176-14.970)	0.027*	
<MODEL 3 EAU 2004/2016>				<0.001*	0.789 / 0.781
EAU risk groups with the WHO 2004/2016 classification	High and very high risk vs. low and intermediate risk (Ref.)	4.925	(1.256-19.310)	0.022*	
Chromosome 17 high polysomy	≥3.45 vs. <3.45 signal/cell (Ref.)	3.688	(1.138-11.950)	0.030*	
<MODEL 4 EAU 2004/2016>				<0.001*	0.795 / 0.789
EAU risk groups with the WHO 2004/2016 classification	High and very high risk vs. low and intermediate risk (Ref.)	4.691	(1.244-17.690)	0.022*	
Distinct highly polysomic cell population	Yes vs. No (Ref.)	4.261	(1.143-15.890)	0.031*	

EORTC risk groups	Progression score <7 vs. ≥7	2.254	(0.756-6.717)	0.145	0.612 / 0.586
<MODEL 1 EORTC>					
EORTC risk groups	Progression score <7 vs. ≥7	1.468	(0.379-5.680)	0.100	0.629 / 0.574
HER2 gene amplification	Amplified vs. non-amplified (Ref.)	3.331	(0.671-16.540)	0.579	
				0.141	
<MODEL 2 EORTC>					
EORTC risk groups	Progression score <7 vs. ≥7	1.102	(0.341-3.563)	0.004*	0.763 / 0.732
Chromosome 17 polysomy	≥2.25 vs. <2.25 signal/cell (Ref.)	6.670	(1.864-23.870)	0.871	
				0.004*	
<MODEL 3 EORTC>					
EORTC risk groups	Progression score <7 vs. ≥7	1.197	(0.314-4.559)	0.030*	0.643 / 0.602
Chromosome 17 high polysomy	≥3.45 vs. <3.45 signal/cell (Ref.)	5.940	(1.385-25.475)	0.792	
				0.017*	
<MODEL 4 EORTC>					
EORTC risk groups	Progression score <7 vs. ≥7	1.590	(0.523-4.832)	0.007*	0.741 / 0.713
Distinct highly polysomic cell population	Yes vs. No (Ref.)	5.579	(1.500-20.742)	0.413	
				0.010*	
AUA risk groups	High vs. low and intermediate risk (Ref.)	6.252	(1.729-22.610)	0.005*	0.728 / 0.728
<MODEL 1 AUA>					
AUA risk groups	High vs. low and intermediate risk (Ref.)	5.473	(1.440-20.806)	0.005*	0.745 / 0.724
HER2 gene amplification	Amplified vs. non-amplified (Ref.)	1.844	(0.489-6.961)	0.013*	
				0.366	
<MODEL 2 AUA>					
AUA risk groups	High vs. low and intermediate risk (Ref.)	3.123	(0.751-12.980)	<0.001*	0.786 / 0.781
Chromosome 17 polysomy	≥2.25 vs. <2.25 signal/cell (Ref.)	4.369	(1.195-15.980)	0.117	
				0.026*	
<MODEL 3 AUA>					
AUA risk groups	High vs. low and intermediate risk (Ref.)	4.322	(1.108-16.860)	<0.001*	0.781 / 0.774
Chromosome 17 high polysomy	≥3.45 vs. <3.45 signal/cell (Ref.)	4.022	(1.245-12.990)	0.035*	
				0.020*	
<MODEL 4 AUA>					
AUA risk groups	High vs. low and intermediate risk (Ref.)	3.712	(0.961-14.350)	<0.001*	0.773 / 0.767
Distinct highly polysomic cell population	Yes vs. No (Ref.)	4.080	(1.061-15.700)	0.057	
				0.041*	
Risk groups of original EAU risk stratification	High and very high risk vs. low and intermediate risk (Ref.)	3.636	(1.013-13.060)	0.048*	0.666 / 0.662

HR: hazard ratio; CI: confidence interval; corr. C-index: bootstrap-corrected C-index; EAU: European Association of Urology; EORTC: European Organisation for Research and Treatment of Cancer; AUA: American Urological Association. * Statistically significant p values are displayed in bold.