

**S4 Table.** Univariate and multivariate Cox regression analyses of CSS in treated patients including chemotherapy received before and after propensity matching

Variable	Unmatched (complete) dataset of 452 treated patients				Propensity score-matched (1:1) dataset of 180 treated patients <sup>a)</sup>			
	Univariate analyses		Multivariate analyses		Univariate analyses		Multivariate analyses	
	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value
<b>CSS</b>								
Male	1.235 (0.902-1.691)	0.188	1.069 (0.768-1.487)	0.694	1.235 (0.806-1.890)	0.332	1.003 (0.631-1.595)	0.990
Age	1.798 (1.342-2.409)	< 0.001	1.864 (1.350-2.574)	< 0.001	2.006 (1.349-2.984)	0.001	2.689 (1.694-4.269)	< 0.001
Binet B/C	1.822 (1.260-2.635)	0.001	1.652 (1.044-2.613)	0.032	2.316 (1.445-3.712)	< 0.001	2.035 (1.057-3.916)	0.033
ECOG PS > 1	1.771 (1.260-2.489)	0.001	1.398 (0.971-2.011)	0.071	1.612 (1.030-2.523)	0.037	1.490 (0.885-2.508)	0.133
Intensive treatments <sup>b)</sup>	1.462 (1.034-2.068)	0.032	1.063 (0.742-1.524)	0.739	1.142 (0.553-2.359)	0.720	1.668 (0.766-3.632)	0.197
Hb <100 g/L	1.504 (1.105-2.047)	0.009	0.972 (0.669-1.412)	0.881	1.549 (1.032-2.324)	0.035	1.054 (0.626-1.774)	0.844
PLT <100×10 <sup>9</sup> /L	1.429 (1.065-1.916)	0.017	0.851 (0.591-1.224)	0.384	1.732 (1.168-2.567)	0.006	0.792 (0.469-1.338)	0.384
LDH >ULN (271 U/L)	1.922 (1.425-2.594)	< 0.001	1.224 (0.863-1.738)	0.257	1.737 (1.168-2.583)	0.006	1.359 (0.828-2.229)	0.225
β <sub>2</sub> -MG >3.50 mg/L	1.828 (1.343-2.488)	< 0.001	1.370 (0.978-1.920)	0.067	1.951 (1.276-2.983)	0.002	1.156 (0.707-1.890)	0.564
TP53 disruption	2.685 (1.983-3.634)	< 0.001	1.908 (1.356-2.684)	< 0.001	2.230 (1.485-3.349)	< 0.001	1.851 (1.118-3.064)	0.017
ATM deletion	1.300 (0.863-1.958)	0.210	1.145 (0.749-1.750)	0.531	1.137 (0.656-1.970)	0.647	1.375 (0.758-2.495)	0.295
IGHV unmutated	2.195 (1.624-2.967)	< 0.001	1.645 (1.188-2.279)	0.003	1.819 (1.221-2.711)	0.003	1.404 (0.895-2.202)	0.140
CD38 ≥ 30%	1.036 (0.750-1.433)	0.828	0.899 (0.642-1.259)	0.535	0.948 (0.602-1.492)	0.817	0.689 (0.423-1.121)	0.134
ZAP-70 ≥ 20%	0.971 (0.715-1.319)	0.851	0.762 (0.555-1.047)	0.093	1.017 (0.678-1.525)	0.937	0.844 (0.550-1.295)	0.436
Diabetic	3.089 (2.250-4.241)	< 0.001	2.717 (1.933-3.818)	< 0.001	2.342 (1.561-3.515)	< 0.001	2.342 (1.476-3.716)	< 0.001

CSS, cancer-specific survival; HR, hazard ratio; 95% CI, 95% confidence interval; ECOG, Eastern Cooperative Oncology Group; PS, performance status; Hb, hemoglobin; PLT, platelet; LDH, lactate dehydrogenase; β<sub>2</sub>-MG, β<sub>2</sub>-microglobulin; IGHV, immunoglobulin heavy chain variable region; ZAP-70, zeta-chain associated protein kinase 70. <sup>a)</sup>Propensity score-matched (1:1) analyses were performed with a small caliper of 0.1 for matching potential cofounders including sex, age, Binet stage, ECOG PS, treatment type (intensive and less intensive), Hb, PLT, LDH and β<sub>2</sub>-MG levels, TP53 disruption, ATM deletion, IGHV mutational status, CD38 and ZAP-70 expressions, <sup>b)</sup>Intensive treatments referred to fludarabine, cyclophosphamide ± rituximab or bendamustine.