

Characteristic	Low-grade C3, PFS				Low-grade C4, PFS				High-grade C4, OS			
	N	HR <sup>1</sup>	95% CI <sup>1</sup>	p-value	N	HR <sup>1</sup>	95% CI <sup>1</sup>	p-value	N	HR <sup>1</sup>	95% CI <sup>1</sup>	p-value
t cells	80	0.60	0.38, 0.95	<b>0.030</b>	104	1.35	1.00, 1.83	<b>0.047</b>	239	1.27	1.05, 1.52	<b>0.013</b>
macrophages	80	1.01	0.98, 1.05	0.4	104	1.00	0.97, 1.02	0.9	239	0.98	0.97, 0.99	<b>0.003</b>
neutrophils	80	1.01	0.99, 1.02	0.5	104	0.99	0.95, 1.02	0.4	239	0.99	0.96, 1.02	0.5
nK cells	80	0.59	0.23, 1.47	0.3	104	1.19	1.03, 1.37	<b>0.020</b>	239	0.97	0.92, 1.03	0.3
b cells	80	2.48	0.89, 6.94	0.083	104	0.50	0.17, 1.43	0.2	239	0.83	0.54, 1.27	0.4
proliferation	80	1.14	0.81, 1.59	0.4	104	1.40	1.09, 1.81	<b>0.008</b>	239	1.02	0.99, 1.04	0.15
Resection	80				104				239			
Biopsy		—	—			—	—			—	—	
GTR		0.21	0.02, 2.21	0.2		0.05	0.01, 0.37	<b>0.003</b>		0.40	0.20, 0.78	<b>0.007</b>
Partial		0.45	0.04, 4.82	0.5		0.42	0.07, 2.67	0.4		0.64	0.37, 1.11	0.11
Diagnosis									239			
ATRT										—	—	
CPC										0.56	0.12, 2.65	0.5
DMG										2.92	1.28, 6.66	<b>0.011</b>
Embryonal										0.24	0.07, 0.83	<b>0.024</b>
Ependymoma										0.20	0.08, 0.52	<b>&lt;0.001</b>

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HGG										0.83	0.39, 1.73	0.6
Medulloblastoma										0.26	0.13, 0.53	<0.001
Sarcoma										0.42	0.12, 1.44	0.2

<sup>1</sup>HR = Hazard Ratio, CI = Confidence Interval

**Supplementary Table S1:** Figure 2A full model results demonstrating the HR of the log<sub>2</sub> increase of *Imsig* signature among primary pCNS neoplasms. Results from three separate cox regression models are displayed. Low-grade C3 included N = 80 samples (18 observations deleted due to missingness) with 18 events. Low-grade C4 included samples N = 104 (41 observations deleted due to missingness) with 30 events. High-grade C4 included N = 239 samples (47 observations deleted due to missingness) with 127 events. Low-grade models examined impact of *Imsig* signatures on progression free survival, adjusted for extent of surgical resection. Addition of diagnosis code to the models resulted in failed convergence due to sample size constraints. High-grade C4 model is adjusted for extent of surgical resection and diagnosis code.

# Western blots

