

Supplementary Table 1

Adverse event	Neoadjuvant +		Adjuvant only group	
	Any grade	Grade 3-4	Any grade	Grade 3-4
	Number of patients (%)			
Treatment-related				
Any	14 (93.3)	10 (66.7)	13 (86.7)	7 (46.7)
Serious	8 (53.3)	4 (26.7)	4 (26.7)	4 (26.7)
Led to discontinuation	2 (13.3)	2 (13.3)	0	0
Led to death	0	0	0	0
Occurred in ≥2 patients in either group				
Muscle weakness	9 (60.0)	2 (13.3)	6 (40.0)	3 (20.0)
Headache	11 (73.3)	0	3 (20.0)	0
Hyperglycemia	8 (53.3)	1 (6.7)	3 (20.0)	0
Decreased lymphocyte count	5 (33.3)	1 (6.7)	5 (33.3)	1 (6.7)
Anemia	7 (46.7)	1 (6.7)	3 (20.0)	0
Nausea	8 (53.3)	0	2 (13.3)	0
Fatigue	6 (40.0)	0	4 (26.7)	0
Hypocalcemia	7 (46.7)	1 (6.7)	2 (13.3)	0
Decreased platelet count	3 (20.0)	0	4 (26.7)	0
Memory impairment	4 (26.7)	0	3 (20.0)	0
Confusion	6 (40.0)	0	1 (6.7)	0
Diarrhea	5 (33.3)	0	2 (13.3)	1 (6.7)
Cognitive disturbance	5 (33.3)	0	1 (6.7)	0
Seizure	5 (33.3)	0	1 (6.7)	0
Hypertension	5 (33.3)	1 (6.7)	1 (6.7)	0
Hyponatremia	3 (20.0)	1 (6.7)	3 (20.0)	1 (6.7)
Cough	3 (20.0)	0	3 (20.0)	0
Aspartate aminotransferase increased	5 (33.3)	1 (6.7)	1 (6.7)	0
Alanine aminotransferase increased	4 (26.7)	1 (6.7)	1 (6.7)	0
Alkaline phosphatase increased	2 (13.3)	0	3 (20.0)	0
Constipation	2 (13.3)	0	3 (20.0)	0
Paresthesia	1 (6.7)	0	4 (26.7)	0
Decreased white blood cell count	3 (20.0)	0	2 (13.3)	1 (6.7)
Hypoalbuminemia	3 (20.0)	0	2 (13.3)	0
Dysphasia	1 (6.7)	0	4 (26.7)	1 (6.7)
Anorexia	4 (26.7)	0	0	0
Back pain	2 (13.3)	0	2 (13.3)	0

Dizziness	1 (6.7)	0	3 (20.0)	0
Gait disturbance	3 (20.0)	0	1 (6.7)	1 (6.7)
Hypomagnesemia	4 (26.7)	0	0	0
Decreased neutrophil count	3 (20.0)	0	1 (6.7)	0
Optic nerve disorder	4 (26.7)	0	0	0
Sinus bradycardia	3 (20.0)	0	1 (6.7)	0
Anxiety	2 (13.3)	0	1 (6.7)	0
Creatinine increased	3 (20.0)	0	0	0
Dyspnea	3 (20.0)	0	0	0
Facial edema	2 (13.3)	0	1 (6.7)	0
Localized edema	2 (13.3)	0	1 (6.7)	0
Pruritis	1 (6.7)	0	2 (13.3)	0
Maculopapular rash	3 (20.0)	0	0	0
Sinus tachycardia	3 (20.0)	0	0	0
Thromboembolic event	2 (13.3)	0	1 (6.7)	0
Urinary incontinence	3 (20.0)	0	0	0
Vomiting	2 (13.3)	0	1 (6.7)	0
Upper respiratory infection	2 (13.3)	0	0	0
Respiratory, thoracic and mediastinal disorders	2 (13.3)	0	0	0
Pain	2 (13.3)	0	0	0
INR increased	2 (13.3)	0	0	0
Hypotension	2 (13.3)	0	0	0
Hypophosphatemia	2 (13.3)	0	0	0
Hypernatremia	2 (13.3)	0	0	0
Hyperkalemia	2 (13.3)	0	0	0
Limb edema	2 (13.3)	0	0	0
Arthralgia	2 (13.3)	0	0	0
Dyspepsia	0	0	2 (13.3)	0
Immune mediated				
Any	9 (60.0)	2 (13.3)	3 (20.0)	1 (6.7)
Hypothyroidism	7 (46.7)	0	0	0
CNS localized edema	4 (26.7)	1 (6.7)	2 (13.3)	1 (6.7)
Hyperthyroidism	4 (26.7)	0	1 (6.7)	0
Pneumonitis	3 (20.0)	1 (6.7)	0	0
Allergic reaction	1 (6.7)	0	0	0

Supplementary Table 2

Differential intratumoral gene expression, neoadjuvant versus adjuvant			
Gene	Log2 fold change	95% CI	P-value (BH)
IL1B	2.43	1.4 – 3.45	0.02
IFIT1	1.54	0.87 – 2.21	0.02
PTGS2	3.04	1.71 – 4.37	0.02
MARCO	2.22	1.22 – 3.22	0.02
CCL4	2.56	1.38 – 3.73	0.02
CCL8	2.09	1.12 – 3.05	0.02
CD83	1.3	0.69 – 1.9	0.02
CCL3L1	2.37	1.19 – 3.54	0.03
CCL3	2.42	1.2 – 3.64	0.03
HAMP	1.67	0.82 – 2.53	0.04

Supplementary Table 3

<b>18 gene interferon-<math>\gamma</math>-related gene signature</b>	
CCL5	CD27
CD274	CD276
CD8A	CMKLR1
CXCL9	CXCR6
HLA-DQA1	HLA-DRB1
HLA-E	IDO1
LAG3	NKG7
PDCD1LG2	PSMB10
STAT1	TIGIT
<b>18 gene interferon-<math>\gamma</math>-related gene signature scores</b>	
Neoadjuvant, mean (SEM)	Adjuvant, mean (SEM)
2.17 (0.07)	2.00 (0.03)

Supplementary Table 4

Histological CD8 TIL and PD-L1 Expression Characteristics		
	Neoadjuvant (n=15)	Adjuvant (n=15)
PD-L1 Expression Pattern		
Constitutive	1	4
Focal	7	3
Negative	5	6
Not Determinable	2	2
CD8 TIL Quantity		
High (>2% of Total Cells)	2	0
Moderate (0.5-2% of Total Cells)	6	9
Low (<0.5% of Total Cells)	5	4
Not Determinable	2	2
Focal PD-L1, Moderate to High CD8 TIL		
Constitutive PD-L1, Low to Moderate CD8 TIL	1	4
Negative PD-L1, Low CD8 TIL	5	6

Supplementary Table 5

	logHR	HR	SE(logHR)	P value
Age	0.016	1.02	0.022	0.47
Sex (1 = female)	-0.241	0.79	0.535	0.65
Treatment (1 = neoadjuvant)	-1.13	0.33	0.562	0.045
IDH status (1 = mutant)	-0.694	0.5	0.906	0.44
Peripheral T cell receptor clonality*	0.392	1.48	0.254	0.12
Tumor infiltrating lymphocyte density*	-0.329	0.72	0.309	0.29

Supplementary Table 6

<b>Target (clone) - tag</b>	<b>Vendor</b>	<b>Catalog number</b>
CD45RA (HI100) - 169Tm	Fluidigm	3169008B
CD69 (FN50) - 144Nd	Fluidigm	3144018B
CD4 (RPA-T4) - 145Nd	Fluidigm	3145001B
CD25 (2A3) - 143Nd	(custom)	
CD19 (HIB19) - 142Nd	Fluidigm	3142001B
CD274 (29E.2A3) - 148Nd	Fluidigm	3148017B
CD14 (M5E2) - 151Eu	Fluidigm	3151009B
CD279 (EH12.2H7) - 155Gd	Fluidigm	3155009B
CD33 (WM53) - 158Gd	Fluidigm	3158001B
CD8a (RPA-T8) - 146Nd	Fluidigm	3146001B
CD15 (W6D3) - 164Dy	Fluidigm	3164001B
CD16 (3G8) - 165Ho	Fluidigm	3165001B
CD3 (UCHT1) - 154Sm	Fluidigm	3154003B
CD11b (ICRF44) - 209Bi	Fluidigm	3209003B
HLA-DR (L243) - 174Yb	Fluidigm	3174001B
CD127 (A019D5) - 176Yb	Fluidigm	3176004B
CD38 (HIT2) - 172Yb	Fluidigm	3172007B
CD206 (15-2) - 168Er	Fluidigm	3168008B
TIM-3 (F38-2E2) - 153Eu	Fluidigm	3153008B
CD223 (LAG-3) - 150Nd	(custom)	
CD152 (14D3) - 161Dy	Fluidigm	3161004B
CD11c (Bu15) - 159Tb	Fluidigm	3159001B
CD27 (O323) - 167Er	Fluidigm	3167002B
CD56 (NCAM 16.2) - 163Dy	Fluidigm	3163007B