

**Supplementary Table 1. Mass cytometry antibody panel**

<b>Label</b>	<b>Target</b>	<b>Clone</b>	<b>Vendor</b>
89Y	CD45	HI30	Fluidigm
141Pr	OX-40	ACT35	Biologend
142Nd	CD19	HIB19	Fluidigm
143Nd	HLADR	L243	Biologend
144Nd	CD69	FN50	Fluidigm
145Nd	CD4	RPAT4	Fluidigm
146Nd	CD8	RPAT8	Fluidigm
147Sm	CD11c	Bu15	Fluidigm
148Nd	CD14	RMO52	Fluidigm
149Sm	CD200	OX104	Fluidigm
150Nd	SOX2	O30678	Fluidigm
151Eu	CD103	BerACT8	Fluidigm
152Sm	CD309	7D4-6	Biologend
153Eu	TIGIT	MBSA43	Fluidigm
154Sm	TIM3	F382E2	Fluidigm
155Gd	CD27	L128	Fluidigm
156Gd	CXCR5	J25204	Biologend
158Gd	CD33	WM53	Fluidigm
159Tb	CCR7	G043H7	Fluidigm
160Gd	T-Bet	4B10	Fluidigm
161Dy	VEGF	23410	Fluidigm
162Dy	FOXP3	PCH101	Fluidigm
163Dy	BTLA	MIH26	Fluidigm
164Dy	CD95	DX2	Fluidigm
165Ho	CD45RO	UCHL1	Fluidigm
166Er	CD36	5-271	Biologend
167Er	CD11b	ICRF44	Fluidigm
168Er	Ki67	Ki-67	Fluidigm
169Tm	CD25	2A3	Fluidigm
170Er	CD3	UCHT1	Fluidigm
171Yb	Granzyme	GB11	Fluidigm
172Yb	CD38	HIT2	Fluidigm
173Yb	4-1BB	4841	Biologend
174Yb	PDL1	EH12.2H7	Fluidigm
175Lu	PD1	29E.2A3	Fluidigm
176Yb	CD56	HCD56	BD Pharmingen
209Bi	CD16	3G8	Biologend

**Supplementary Table 2. SOX2 peptide library**

---

1	H-S-A-R-M-Y-N-M-M-E-T-E-L-K	44	V-N-Q-R-M-D-S-Y-A-H-M-N-G-W-S
2	R-M-Y-N-M-M-E-T-E-L-K-P-P-G	45	M-D-S-Y-A-H-M-N-G-W-S-N-G-S-Y
3	N-M-M-E-T-E-L-K-P-P-G-P-Q-Q-T	46	A-H-M-N-G-W-S-N-G-S-Y-S-M-M
4	T-E-L-K-P-P-G-P-Q-Q-T-S-G-G-G	47	N-G-W-S-N-G-S-Y-S-M-M-Q-D-Q-L
5	P-P-G-P-Q-Q-T-S-G-G-G-G-N-S	48	N-G-S-Y-S-M-M-Q-D-Q-L-G-Y
6	P-Q-Q-T-S-G-G-G-G-N-S-T-A-A	49	S-Y-S-M-M-Q-D-Q-L-G-Y-P-Q-H
7	S-G-G-G-G-N-S-T-A-A-A-A-G-G	50	M-M-Q-D-Q-L-G-Y-P-Q-H-P-G-L
8	G-G-N-S-T-A-A-A-A-G-G-N-Q-K	51	D-Q-L-G-Y-P-Q-H-P-G-L-N-A-H-G
9	S-T-A-A-A-A-G-G-N-Q-K-N-S	52	Y-P-Q-H-P-G-L-N-A-H-G-A-A-Q-M
10	A-A-A-A-G-G-N-Q-K-N-S-P-D-R-V	53	P-G-L-N-A-H-G-A-A-Q-M-Q-P-M-H
11	G-G-N-Q-K-N-S-P-D-R-V-K-R-P-M	54	A-H-G-A-A-Q-M-Q-P-M-H-R-Y-D-V
12	K-N-S-P-D-R-V-K-R-P-M-N-A-F-M	55	A-Q-M-Q-P-M-H-R-Y-D-V-S-A-L
13	D-R-V-K-R-P-M-N-A-F-M-V-W-S-R	56	M-Q-P-M-H-R-Y-D-V-S-A-L-Q-Y
14	R-P-M-N-A-F-M-V-W-S-R-G-Q-R-R	57	M-H-R-Y-D-V-S-A-L-Q-Y-N-S-M-T
15	A-F-M-V-W-S-R-G-Q-R-R-K-M-A	58	D-V-S-A-L-Q-Y-N-S-M-T-S-S-Q-T
16	V-W-S-R-G-Q-R-R-K-M-A-Q-E-N-P-K	59	L-Q-Y-N-S-M-T-S-S-Q-T-Y-M-N-G
17	G-Q-R-R-K-M-A-Q-E-N-P-K-M-H	60	S-M-T-S-S-Q-T-Y-M-N-G-S-P-T-Y
18	R-K-M-A-Q-E-N-P-K-M-H-N-S-E-I	61	S-Q-T-Y-M-N-G-S-P-T-Y-S-M-S-Y
19	A-Q-E-N-P-K-M-H-N-S-E-I-S-K-R	62	M-N-G-S-P-T-Y-S-M-S-Y-S-Q-Q-G
20	P-K-M-H-N-S-E-I-S-K-R-L-G-A	63	P-T-Y-S-M-S-Y-S-Q-Q-G-T-P-G-M
21	H-N-S-E-I-S-K-R-L-G-A-E-W-K-L	64	M-S-Y-S-Q-Q-G-T-P-G-M-A-L-G-S
22	I-S-K-R-L-G-A-E-W-K-L-L-S-E-T	65	S-Q-Q-G-T-P-G-M-A-L-G-S-M-G-S
23	L-G-A-E-W-K-L-L-S-E-T-E-K-R	66	T-P-G-M-A-L-G-S-M-G-S-V-V-K-S
24	E-W-K-L-L-S-E-T-E-K-R-P-F-I	67	A-L-G-S-M-G-S-V-V-K-S-E-A-S-S
25	L-L-S-E-T-E-K-R-P-F-I-D-E-A-K	68	M-G-S-V-V-K-S-E-A-S-S-S-P-P-V
26	T-E-K-R-P-F-I-D-E-A-K-R-L-R-A	69	V-K-S-E-A-S-S-S-P-P-V-V-T-S-S
27	P-F-I-D-E-A-K-R-L-R-A-L-H-M-K	70	A-S-S-S-P-P-V-V-T-S-S-S-H-S-R
28	E-A-K-R-L-R-A-L-H-M-K-E-H	71	P-P-V-V-T-S-S-S-H-S-R-A
29	K-R-L-R-A-L-H-M-K-E-H-P-D-Y-K	72	P-V-V-T-S-S-S-H-S-R-A-P-C-Q-A
30	A-L-H-M-K-E-H-P-D-Y-K-Y-R-P-R	73	S-S-S-H-S-R-A-P-C-Q-A-G-D-L-R
31	K-E-H-P-D-Y-K-Y-R-P-R-R-K-T-K	74	S-R-A-P-C-Q-A-G-D-L-R-D-M-I-S
32	D-Y-K-Y-R-P-R-R-K-T-K-T-L-M-K	75	C-Q-A-G-D-L-R-D-M-I-S-M-Y-L
33	R-P-R-R-K-T-K-T-L-M-K-K-D-K-Y	76	G-D-L-R-D-M-I-S-M-Y-L-P-G-A
34	K-T-K-T-L-M-K-K-D-K-Y-T-L-P-G	77	R-D-M-I-S-M-Y-L-P-G-A-E-V
35	L-M-K-K-D-K-Y-T-L-P-G-G-L-L-A	78	M-I-S-M-Y-L-P-G-A-E-V-P-E-P-A
36	D-K-Y-T-L-P-G-G-L-L-A-P-G-G	79	Y-L-P-G-A-E-V-P-E-P-A-A-P-S-R
37	T-L-P-G-G-L-L-A-P-G-G-N-S-M-A	80	A-E-V-P-E-P-A-A-P-S-R-L-H-M-S
38	G-L-L-A-P-G-G-N-S-M-A-S-G-V-G	81	E-P-A-A-P-S-R-L-H-M-S-Q-H-Y
39	P-G-G-N-S-M-A-S-G-V-G-V-G-A-G	82	A-P-S-R-L-H-M-S-Q-H-Y-Q-S-G

40 S-M-A-S-G-V-G-V-G-A-G-L-G-A-G

41 G-V-G-V-G-A-G-L-G-A-G-V-N-Q-R

42 G-A-G-L-G-A-G-V-N-Q-R-M-D-S-Y

43 G-A-G-V-N-Q-R-M-D-S-Y-A-H-M

83 R-L-H-M-S-Q-H-Y-Q-S-G-P-V-P-G

84 S-Q-H-Y-Q-S-G-P-V-P-G-T-A-I

85 Y-Q-S-G-P-V-P-G-T-A-I-N-G-T-L

86 P-V-P-G-T-A-I-N-G-T-L-P-L-S-H-M

---

**Pool 1:** 1-22 **Pool 2:** 23-44 **Pool 3:** 45-66 **Pool 4:** 67-86

**Supplementary Table 3.** Characteristics of patients tested for SOX2 T-cell reactivity

<b>Subtype</b>	<b>Age</b>	<b>Gender</b>	<b>WHO Grade</b>	<b>Tumor Location</b>	<b>BRAF V600E</b>	<b>IDH1</b>	<b>1P 19Q</b>	<b>MGMT</b>
JPA	6	F	I	Brainstem	Positive	Negative	N/A	N/A
JPA	13	M	I	Cerebral	Negative	N/A	N/A	N/A
JPA	6	F	I	Posterior Fossa	Negative	Negative	N/A	N/A
JPA	6	F	I	Cerebral	Negative	Negative	N/A	N/A
JPA	10	F	I	Posterior Fossa	Negative	Negative	N/A	N/A
Diffuse Astrocytoma	4	M	II	Cerebral	Negative	Negative	Negative	N/A
Anaplastic Astrocytoma	4	F	III	Brainstem	Negative	Negative	N/A	Unmethylated
Anaplastic Astrocytoma	36	M	III	Cerebral	N/A	N/A	N/A	N/A
Ganglioglioma	8	F	I	Cerebral	Negative	N/A	N/A	N/A
Anaplastic Ganglioglioma	18	F	III	Cerebral	Positive	Negative	Positive	Unmethylated
Oligodendroglioma	29	M	II	Cerebral	N/A	Positive	Negative	Methylated
Oligodendroglioma	22	M	III	Cerebral	N/A	Positive	Positive	N/A
Glioblastoma	22	F	IV	Cerebral	Negative	Negative	Negative	Unmethylated
Diffuse Intrinsic Pontine Glioma	4	F	N/A	Brainstem	N/A	N/A	N/A	N/A

**Supplementary Table 4. Patient Characteristics and SOX2 T-cell Response**

	<b>SOX2 T-cell Response</b>		<b>p value</b>
	<b>+</b>	<b>-</b>	
Histology			
LGG (WHO I+II)	60%	55%	ns
Median age (range in years)	16.6 (4-29)	11.6 (4-22)	ns
Treatment			
Surgery Alone	60%	44.4%	ns
Chemotherapy	20%	55.6%	ns
None	20%	0%	ns
Corticosteroids (within 2 months)	20%	11.1%	ns