

Table SI. List of hotspot mutations

Chr	Start	Ref	Alt	Gene	Role	sample_count
chr19	9296779	C	T	OR7D2	nonsynonymous SNV	4
chr7	128850341	G	T	SMO	nonsynonymous SNV	4
chr2	16082317	C	T	MYCN	nonsynonymous SNV	3
chr2	180348096	C	T	ZNF385B	synonymous SNV	3
chr7	128846398	C	T	SMO	nonsynonymous SNV	3
chr1	181022722	C	T	MR1	synonymous SNV	2
chr2	179579150	C	T	TTN	stopgain	2
chr3	48459922	G	A	PLXNB1	synonymous SNV	2
chr3	130098339	G	A	COL6A5	nonsynonymous SNV	2
chr4	71509960	G	A	ENAM	synonymous SNV	2
chr5	179977017	C	T	CNOT6	nonsynonymous SNV	2
chr6	86256893	G	A	SNX14	nonsynonymous SNV	2
chr6	110714005	C	T	DDO	synonymous SNV	2
chr7	154379406	C	T	DPP6	nonsynonymous SNV	2
chr7	155595786	C	T	SHH	synonymous SNV	2
chr8	113564899	G	A	CSMD3	nonsynonymous SNV	2
chr11	57147034	C	T	PRG3	nonsynonymous SNV	2
chr11	108382168	G	A	EXPH5	nonsynonymous SNV	2
chr11	123624384	G	A	OR6X1	synonymous SNV	2
chr12	7640676	C	T	CD163	synonymous SNV	2
chr12	122260722	C	T	SETD1B	nonsynonymous SNV	2
chr15	41192021	C	T	VPS18	synonymous SNV	2
chr17	33591689	C	T	SLFN5	synonymous SNV	2
chr18	19053121	C	T	GREB1L	nonsynonymous SNV	2
chr19	2403104	C	T	TMPRSS9	nonsynonymous SNV	2
chr20	47251245	G	A	PREX1	synonymous SNV	2
chr1	248437021	G	A	OR2T33	synonymous SNV	2
chr3	130104182	C	T	COL6A5	synonymous SNV	2
chr4	9270328	G	A	USP17L20 ; USP17L22	stopgain	2
chr5	140530402	G	A	PCDHB6	synonymous SNV	2
chr12	54858851	C	T	GTSF1	synonymous SNV	2
chr3	97851849	C	T	OR5H1	nonsynonymous SNV	2
chr10	124697319	G	A	C10orf88	synonymous SNV	2
chr11	55136139	G	A	OR4A15	synonymous SNV	2
chr11	126333084	C	T	KIRREL3	nonsynonymous SNV	2
chr1	120539760	G	A	NOTCH2	nonsynonymous SNV	2
chr5	140221257	C	T	PCDHA8	synonymous SNV	2
chr6	70637811	C	T	COL19A1	nonsynonymous SNV	2
chr6	126080297	C	T	HEY2	synonymous SNV	2
chr7	19184938	G	A	FERD3L	synonymous SNV	2
chr12	50749681	C	T	FAM186A	nonsynonymous SNV	2
chr14	23235899	C	T	OXA1L	nonsynonymous SNV	2
chr1	248737528	C	T	OR2T34	synonymous SNV	2
chr7	5569191	G	A	ACTB	nonsynonymous SNV	2
chr7	88963764	G	A	ZNF804B	nonsynonymous SNV	2
chr7	156759764	C	T	NOM1	nonsynonymous SNV	2
chr10	107005339	C	T	SORCS3	nonsynonymous SNV	2
chr14	70924450	C	T	ADAM21	synonymous SNV	2
chr17	63049805	G	A	GNA13	nonsynonymous SNV	2
chr18	22806257	G	A	ZNF521	nonsynonymous SNV	2
chr1	197026445	C	T	F13B	nonsynonymous SNV	2
chr1	201915303	C	T	LMOD1	nonsynonymous SNV	2
chr2	219754815	C	T	WNT10A	synonymous SNV	2
chr4	54218893	G	A	SCFD2	synonymous SNV	2
chr4	158281188	G	A	GRIA2	synonymous SNV	2
chr9	14868853	G	A	FREM1	synonymous SNV	2
chr11	20658835	C	T	SLC6A5	nonsynonymous SNV	2
chr11	56310295	G	A	OR5M11	nonsynonymous SNV	2
chr14	92465750	G	A	TRIP11	nonsynonymous SNV	2
chr17	53158523	C	T	STXBP4	nonsynonymous SNV	2
chr19	1556277	G	A	MEX3D	nonsynonymous SNV	2
chrX	89177129	G	A	TGIF2LX	synonymous SNV	2
chrX	128645905	C	T	SMARCA1	nonsynonymous SNV	2
chrX	151821280	C	T	GABRQ	nonsynonymous SNV	2
chr7	151882657	T	G	KMT2C	synonymous SNV	2
chr8	77617823	C	T	ZFHX4	synonymous SNV	2
chr11	60173363	G	A	MS4A14	nonsynonymous SNV	2
chrX	124456785	G	A	TEX13C	synonymous SNV	2
chr15	86800168	C	T	AGBL1	nonsynonymous SNV	2
chr19	56515242	G	A	NLRP5	nonsynonymous SNV	2
chr7	141898444	G	A	MGAM2	synonymous SNV	2
chr14	103597481	C	T	TNFAIP2	nonsynonymous SNV	2
chrX	5821513	G	A	NLGN4X	synonymous SNV	2
chr5	39331894	G	A	C9	nonsynonymous SNV	2
chr5	156277974	G	A	PPP1R2P3	nonsynonymous SNV	2

Table SI. Contd.

Chr	Start	Ref	Alt	Gene	Role	sample_count
chr11	56019823	G	A	OR5T3	nonsynonymous SNV	2
chr18	12097661	C	T	ANKRD62	nonsynonymous SNV	2
chr19	14694169	G	A	CLEC17A	nonsynonymous SNV	2
chr19	41186951	G	A	NUMBL	synonymous SNV	2
chr19	56041445	G	A	SBK2	synonymous SNV	2
chr21	10914379	G	A	TPTE	nonsynonymous SNV	2
chrX	140995378	C	T	MAGEC1	nonsynonymous SNV	2
chr1	10239504	C	T	UBE4B	nonsynonymous SNV	2
chr8	37702243	G	A	BRF2	nonsynonymous SNV	2
chr14	20585694	C	T	OR4K17	synonymous SNV	2
chr18	77170646	C	T	NFATC1	nonsynonymous SNV	2
chr1	75172059	G	A	CRYZ	nonsynonymous SNV	2
chr1	209805978	G	A	LAMB3	nonsynonymous SNV	2
chr6	27879029	G	A	OR2B2	nonsynonymous SNV	2
chr6	100841753	G	A	SIM1	nonsynonymous SNV	2
chrX	152958498	C	T	SLC6A8	synonymous SNV	2
chr1	113253894	G	A	PPM1J	nonsynonymous SNV	2
chr1	157804266	C	T	CD5L	nonsynonymous SNV	2
chr19	9057805	C	T	MUC16	nonsynonymous SNV	2
chr2	179702336	C	T	CCDC141	nonsynonymous SNV	2
chr6	149983275	G	A	LATS1	nonsynonymous SNV	2