Table S2 Overview on mutations found in individual tumor sample upon exome sequencing and Sanger sequencing.

Patient.#	Type	Gene symbol	Genomic position	Transcript	Exon	CDS level	Protein level	Mutation type
#1	missense	USP29	chr19:g.57641397A>G	NM_020903	exon4	c.A1354G	p.N452D	de_novo
	missense	STAG2	chrX:g.123191774G>C	NM_001042751	exon15	c.G1363C	p.G455R	de_novo
	nonsense	IGSF10	chr3:g.151164002G>C	NM_178822	exon4	c.C3767G	p.S1256*	de_novo
	missense	IL18RAP	chr2:g.103061734G>T	NM_003853	exon9	c.G1006T	p.A336S	de_novo
	nonframeshift deletion	USP8	chr15:g. 50782639_50782641delCTC	NM_005154	exon14	c.2151_2153del	p.S718del	de_novo
#2	nonsense	PRAMEF18	chr1:g.13475108G>A	NM_001099850	exon3	c.C1021T	p.R341*	de_novo
	missense	MAST4	chr5:g.66396272T>G	NM_001164664	exon8	c.T922G	p.S308A	de_novo
	missense	STX19	chr3:g.93733584A>T	NM_001001850	exon2	c.T530A	p.M177K	de_novo
	missense	SRF	chr6:g.43139732G>A	NM_003131	exon1	c.G338A	p.G113E	de_novo
	missense	CCBL1	chr9:g.131605030T>C	NM_001287390	exon5	c.A386G	p.Q129R	de_novo
	synonymous	ORC5	chr7:g.103824572T>C	NM_181747	exon7	c.A732G	p.E244E	de_novo
	missense	ESCO2	chr8:g.27634348A>G	NM_001017420	exon3	c.A523G	p.I175V	de_novo
#3	missense	VWF	chr12:g.6143905G>C	NM_000552	exon20	c.C2634G	p.F878L	de_novo
	missense	ORC4	chr2:g.148701078T>C	NM_181742	exon10	c.A776G	p.D259G	de_novo
	missense	PPFIA3	chr19:g.49646247G>T	NM_003660	exon21	c.G2731T	p.A911S	de_novo
	missense	USP8	chr15:g.50782647C>G	NM_005154	exon14	c.C2159G	p.P720R	de_novo
	synonymous	FAM3D	chr3:g.58625897C>T	NM_138805	exon7	c.G330A	p.T110T	de_novo
	synonymous	SERPIND1	chr22:g.21133909G>A	NM_000185	exon2	c.G309A	p.P103P	de_novo
#4	missense	VSTM5	chr11:g.93553760A>G	NM_001144871	exon4	c.T578C	p.I193T	rs145330903
	missense	ABCC12	chr16:g.48119545G>C	NM_033226	exon27	c.C3787G	p.Q1263E	de_novo
	missense	BCOR	chrX:g.39934316C>T	NM_001123385	exon4	c.G283A	p.G95R	de_novo
	missense	MXRA5	chrX:g.3248316G>A	NM_015419	exon4	c.C452T	p.T151M	de_novo
	missense	LARP6	chr15:g.71125005C>G	NM_018357	exon3	c.G862C	p.A288P	de_novo
	missense	DDX5	chr17:g.62496117T>C	NM_004396	exon13	c.A1769G	p.Q590R	de_novo
#5	missense	NME5	chr5:g.137474451G>A	NM_003551	exon2	c.C19T	p.P7S	de_novo
	missense	CPM	chr12:g.69279576T>C	NM_001874	exon3	c.A254G	p.D85G	de_novo
	missense	URGCP	chr7:g.43917756C>T	NM_001077664	exon6	c.G1177A	p.G393S	de_novo
	synonymous	AKAP13	chr15:g.86123393C>T	NM_006738	exon7	c.C2094T	p.P698P	de_novo
	missense	UGT8	chr4:g.115544086T>C	NM_001128174	exon2	c.T50C	p.I17T	de_novo
	missense	NRP2	chr2:g.206581044G>T	NM_201267	exon3	c.G379T	p.D127Y	de_novo
	missense	PRKAA2	chr1:g.57170038T>G	NM_006252	exon7	c.T1183G	p.L395V	de_novo
	missense	GTF3C3	chr2:g.197639942A>G	NM_012086	exon13	c.T1729C	p.S577P	de_novo
	missense	USP8	chr15:g.50782640T>C	NM_005154	exon14	c.T2152C	p.S718P	de_novo
#6	missense	USP8	chr15:g.50782647C>G	NM_005154	exon14	c.C2159G	p.P720R	de_novo
#7	missense	GABRE	chrX:g.151123466C>A	NM_004961	exon9	c.G1228T	p.V410F	rs377185335
	missense	ZNF846	chr19:g.9873961G>C	NM_001077624	exon3	c.C139G	p.L47V	de_novo
	missense	APBB1	chr11:g.6417349A>T	NM_001257321	exon12	c.T992A	p.L331H	de_novo
	missense	USP8	chr15:g.50782640T>C	NM_005154	exon14	c.T2152C	p.S718P	de_novo
#8	synonymous	SLC22A31	chr16:g.89262557C>T	NM_001242757	exon8	c.G867A	p.E289E	de_novo
	synonymous	MC5R	chr18:g.13826649T>C	NM_005913	exon1	c.T885C	p.Y295Y	de_novo
	missense	USP8	chr15:g.50782640T>C	NM_005154	exon14	c.T2152C	p.S718P	de_novo
#9	synonymous	SOCS5	chr2:g.46986776C>G	NM_014011	exon2	c.C1107G	p.L369L	de_novo
	synonymous	TTC21A	chr3:g.39162556C>A	NM_145755	exon9	c.C993A	p.P331P	de_novo
	missense	SIPA1	chr11:g.65416868T>A	NM_006747	exon10	c.T2442A	p.D814E	de_novo
	missense	PLCL2	chr3:g.17053434G>A	NM_015184	exon2	c.G2218A	p.G740R	de_novo
	missense	USP8	chr15:g.50782640T>C	NM_005154	exon14	c.T2152C	p.S718P	de_novo
#10	nonsense	SLC27A1	chr19:g.17615296C>T	NM_198580	exon12	c.C1816T	p.R606*	rs201661631
	synonymous	MED13L	chr12:g.116434406C>T	NM_015335	exon16	c.G2871A	p.P957P	de_novo
	nonsense	NR3C1	chr5:g.142675154G>A	NM_001204263	exon7	c.C904T	p.Q302*	de_novo
#11	synonymous	KDR	chr4:g.55976673C>T	NM_002253	exon9	c.G1152A	p.T384T	rs200767530
	synonymous	ITK	chr5:g.156608006C>T	NM_005546	exon1	c.C18T	p.L6L	de_novo
	missense	TICRR	chr15:g.90166869C>T	NM_152259	exon20	c.C3328T	p.H1110Y	de_novo
#12	missense	NUFIP1	chr13:g.45554933T>G	NM_012345	exon3	c.A518C	p.H173P	de_novo
	missense	LY75-CD302	chr2:g.160672078C>T	NM_001198760	exon31	c.G4387A	p.E1463K	de_novo
	missense	SLC24A2	chr9:g.19573359G>A	NM_001193288	exon5	c.C1286T	p.A429V	de_novo
	synonymous	KLF15	chr3:g.126071367G>T	NM_014079	exon2	c.C399A	p.V133V	de_novo
	nonframeshift deletion	USP8	chr15:g. 5078263_50782641delCTC	NM_005154	exon14	c.2151_2153del	p.S718del	de_novo