

**Supplementary Table 1: Summary of Samples Used for Deep Sequencing**

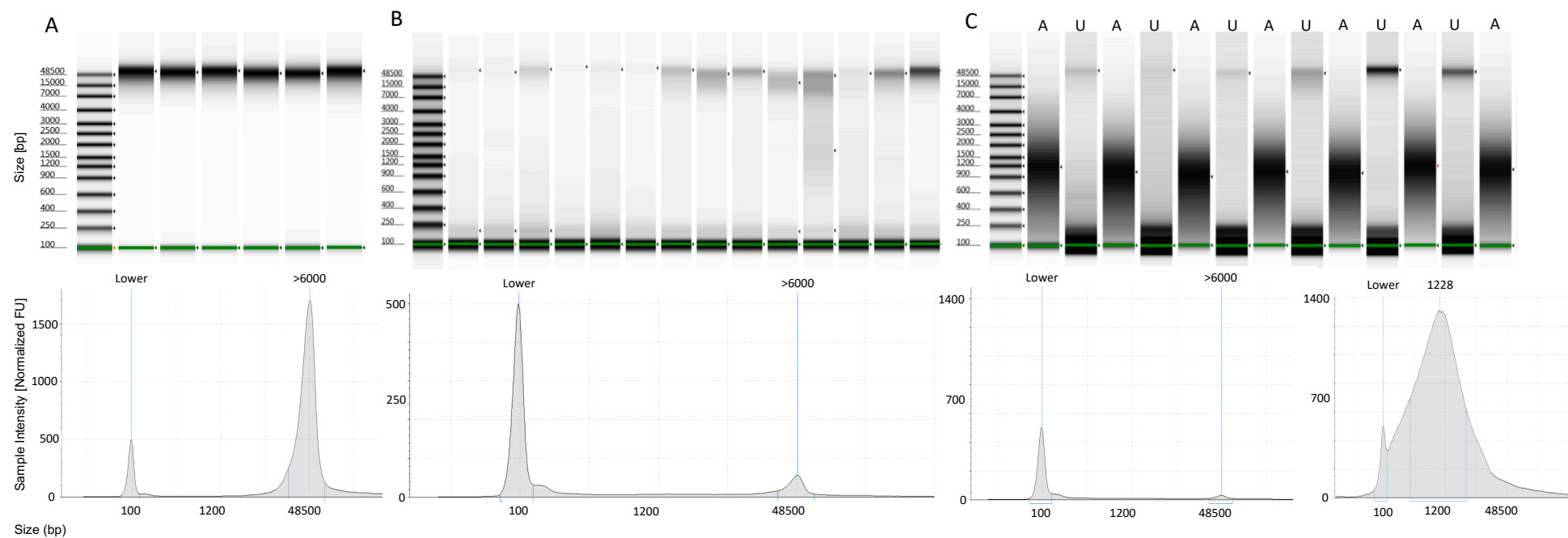
<b>Patient</b>	<b>Samples used for panel sequencing</b>	<b>Samples used for exome sequencing</b>
1	Electrodes (amplified DNA): P1b, T2A, P2dlb Brain Tissue: one sample from right parietal lobe Blood	Electrode (amplified DNA): P1b Brain tissue: one sample from right parietal lobe
2	Electrodes (amplified DNA): F2d, F1aCb, F1bCc, F2aCa	Electrode (amplified DNA): F2d
3	Electrodes (amplified DNA): F2, F1bCb, F1cCc, F1aCa, P11b Blood	Electrode (amplified DNA): F1aCa
4	Electrodes (amplified DNA): T1a, T1b, T3aOTa, T2aA, T3bOTb, T2bH Brain Tissue: samples corresponding to T3aOTa (2 samples), T1b (4 samples), T2bH (2 samples), T1a (2 samples), T2aA (3 samples), T3bOTb (2 samples)	Electrode (amplified DNA): T2bH Brain tissue: sample corresponding to T2bH
5	Electrodes (amplified DNA): P2b, T1d, P2alc, T1c, P2d, T1bA, P2eC, P11b Blood	Electrode (amplified DNA): T1c
6	Electrodes (amplified DNA): F2a, P2ald, F1cCd, F3alaOFb	Electrode (amplified DNA): F1cCd
7	Electrodes (amplified DNA): LF3a, LT2, RT2, LT1alb, RT1blc, LT1b, LF2bCb, RF2a, LF1aCaOF, LF2aOFa, LF3blaOF Electrode (unamplified DNA): RT1blc, LF1aCaOF Brain Tissue: one sample from right temporal lobe and three samples from left frontal lobe Blood	—
8	Electrodes (amplified DNA): T3c, T2Hb, T2aHa, T1aA Blood	Electrode (amplified DNA): T3aHa
9	Electrodes (amplified DNA): LF2e, LF1aOFa, LF2bCa, LF3blbOFd, RF1aCaOF Blood	—
10	Electrodes (amplified DNA): F3a, F3bl, P2a Blood	Electrode (amplified DNA): F3bl

**Supplementary Table 2: Genes Included in Panel**

ABL1	DEPDC5	KANSL1	NTRK2	SCN1B
ACVR1	DICER1	KCNA2	OFD1	SCN2A
ADSL	DNAJC5	KCNB1	PACSI	SCN8A
AKT1	DNM1	KCNC1	PAFAH1B1	SDHD
AKT3	DOCK7	KCNHI	PCDH19	SEC13
ALDH5A1	DYRK1A	KCNJ10	PDGFRA	SEH1L
ALDH7A1	EEF1A2	KCNMA1	PDPK1	SETD2
ALG13	EGFR	KCNQ2	PHGDH	SHANK3
ALK	EHMT1	KCNQ3	PHOX2B	SHOC2
ANKRD11	EPCAM	KCNT1	PIGA	SLC13A5
APC	EPM2A	KCTD7	PIGG	SLC19A3
ARG1	EPPK1	KDM6A	PIGN	SLC25A22
ARHGEF9	ERBB2	KDR	PIGO	SLC2A1
ARX	ERBB4	KIF7	PIGT	SLC35A2
ASNS	EZH2	KIT	PIGV	SLC6A1
ATM	FBXW7	KLF4	PIK3CA	SLC6A8
ATPIA2	FGF12	KRAS	PIK3CG	SLC9A6
ATPIA3	FGFR1	LGI1	PIK3R1	SMAD4
ATP6AP2	FGFR2	LZTR1	PIK3R2	SMARCA2
ATRX	FGFR3	MAGI2	PLCBI	SMARCB1
BCOR	FLNA	MAP2K1	PLEKHS1	SMC1A
BRAF	FLT3	MAP2K2	PMS2	SMO
BRAT1	FOLR1	MAP3K1	PNKP	SNAP25
C12ORF57	FOXG1	MAP4K1	PNPO	SOS1
CACNA1A	FRRS1L	MBD5	POLG	SPATA5
CACNA1E	FUBP1	MDM1	PPM1D	SPRED1
CACNA1G	GABBR2	MDM2	PPP2R5D	SPTAN1
CASK	GABRA1	MDM4	PPT1	SRC
CCND2	GABRB2	MECP2	PRKAA1	STAG2
CDC73	GABRB3	MED12	PRKAA2	STK11
CDHI	GABRG2	MEF2C	PRKAB1	STRADA
CDK4	GAMT	MEN1	PRKAB2	STX1B
CDK6	GAPDH	MET	PRKAG1	STXBPI
CDKL5	GATM	MFSD8	PRKAG2	SUFU
CDKN2A	GLDC	MIOS	PRKAG3	SYNGAP1
CDKN2B	GLI3	MLH1	PRKARIA	SZT2
CDKN2C	GLTSCR2	MPL	PRNP	TBC1D24
CHD2	GNAI1	MSH2	PRRT2	TBC1D7
CHRNA2	GNAO1	MSH6	PTCH1	TBLIXR1
CHRNA4	GNAQ	MTOR	PTEN	TCF4
CHRNA7	GNAS	MYC	PTPNI1	TERT
CHRN2	GOSR2	MYCN	PURA	TP53
CIC	GPC3	MYL3	QARS	TPPI
CLCN4	GRIN1	NALCN	RAF1	TSC1
CLN3	GRIN2A	NEXMIF	RBI	TSC2
CLN5	GRIN2B	NF1	RET	TSHZ2
CLN6	H3F3A	NF2	RHEB	TUBB2A
CLN8	HCN1	NGLY1	RIT1	UBE3A
CNTNAP2	HIST1H3B	NHLRC1	RPL5	VHL
CSF1R	HNFA	NOTCH1	RPSAP58	WDR24
CSTB	HNRNPU	NPM1	RRAGA	WDR45
CTNNA1	HRAS	NPRL2	RRAGB	WDR59
CTSD	IDH1	NPRL3	RRAGC	WDR74
CTSF	IDH2	NR2F1	RRAGD	WT1
CUL4B	IQSEC2	NRAS	SATB2	WWOX
DCX	JAK2	NRXN1	SCARB2	
DDX3X	JAK3	NSD1	SCN1A	

**Supplementary Table 3: Primers Used for Amplicon Sequencing Validation**

<b>Gene</b>	<b>Primer Set</b>
<i>CIC</i>	F: TGGCAAAGGCTATGGTTCCG R: AGTGCCCATTTTCAGTCCTGG
<i>CNTNAP2</i>	F: CTCCAAGCCCTGTCTAACC R: TATTCCATTGCCTGCCTCCC
<i>KDM6A</i>	F: GGATACAGTGCCGTAAAATGCT R: TCACAATGCCAGATTTTCTTTGT
<i>PTEN</i>	F: CCCACCACAGCTAGAACTTA R: CCAGGAAGAGGAAAGGAAAA



**Supplementary Figure 1:** TapeStation analysis. A) Genomic DNA (gDNA) extracted from resected brain tissue samples with well-defined >6000bp bands (top) and individual example of high amplitude >6000bp peak (bottom). B) Unamplified gDNA extracted from trace brain tissue attached to removed electrodes with less well-defined >6000bp bands (top) and individual example of lower amplitude >6000bp sample peak (bottom). C) Paired whole-genome amplified (A) and unamplified gDNA (U) from the same samples. Whole-genome amplified DNA, amplified using primary-template directed amplification from trace brain tissue attached to removed electrodes, has consistent well-defined bands centered around 1200bp (top) with individual example of high-amplitude peak centered around 1200bp (bottom) compared to the paired unamplified gDNA extractions.