

Supplementary Table 1: Clinical information of TSC, FCD IIB and autopsy control cases (0-3 yo)

ID	PA Diagnosis	Gender	Onset age (y)	Age (during operation)	Seizure frequency (month)	Seizure type	Area of resection	AED	Mutation
C16 ^a	Control	f	NA	0	NA	NA	C	NA	NA
C18 ^a	Control	f	NA	0	NA	NA	C	NA	NA
C19 ^a	Control	f	NA	2	NA	NA	C	NA	NA
C22 ^a	Control	f	NA	0	NA	NA	C	NA	NA
F11 ^a	FCD 2b	m	1	3	152	Focal	P	CLB, OXC	NA
F31 ^a	FCD 2b	m	0	2	30	Focal	F	PHT, TPM, VPA, VGB	NA
F36 ^a	FCD 2b	m	0	3	30	Focal	F	CBZ, LCS	NA
F41 ^a	FCD 2b	f	0	3	517	Focal	F	CBZ, CLB, LEV, OXC, VPA	MTOR
F66 ^a	FCD 2b	m	1	2	91	Focal	F	CBZ	NA
T2 ^a	TSC	m	0	2	122	Focal	F	LEV, VGB	TSC2
T12 ^a	TSC	f	0	2	304	Focal	F	CNP, LEV, OXC, ZNS	TSC1
T13 ^a	TSC	m	0	2	152	Focal	F	ZNS	TSC2
T14 ^a	TSC	m	0	2	304	Focal	F	CLB, LEV, PB, VGB	TSC2
T15 ^a	TSC	m	0	1	243	Focal	F	CLB, VGB, ZNS	TSC2
T16 ^a	TSC	m	0	0	61	Focal	F	CLB, LEV, VGB	TSC2
T18 ^a	TSC	m	0	0	304	Focal	F	CBZ, LEV, VGB	TSC2
T19 ^a	TSC	m	2	3	457	Focal	F	LEV	TSC1
T22 ^a	TSC	v	0	0	152	Focal	F	CLB, LEV, VGB	TSC2
T24 ^a	TSC	f	0	0	152	Focal	F	LEV, OXC, VGB	TSC2

m = male, f = female, y = year, C = cortex, F = frontal, T = temporal, P = parietal, O = occipital, CBZ = Carbamazepine, CLB = Clobazam, CNP = Clonazepam, LCS = Lacosamide, LEV = Levetiracetam, LMT = Lamotrigine, OXC = Oxcarbazepine, PB = Phenobarbital, PER = Perampanel, PHT = Phenytoin, TPM = Topiramate, VGB = Vigabatrin, VPA = Valproic acid, ZNS = Zonisamide,

^a = RNA sequencing, ^b = IHC validation, ^c = Functional Experiments

Supplementary Table 1: Clinical information of TSC, FCD IIB and autopsy control cases (5-20 yo)

ID	PA Diagnosis	Gender	Onset age (y)	Age (during operation)	Seizure frequency (month)	Seizure type	Area of resection	AED	Mutation
C17 ^a	Control	m	NA	10	NA	NA	C	NA	NA
C20 ^a	Control	m	NA	15	NA	NA	C	NA	NA
C21 ^a	Control	m	NA	13	NA	NA	C	NA	NA
C23 ^a	Control	m	NA	10	NA	NA	C	NA	NA
C24 ^a	Control	f	NA	17	NA	NA	C	NA	NA
C25 ^a	Control	f	NA	17	NA	NA	C	NA	NA
F4 ^a	FCD 2b	f	3	9	9	Focal	F	OXC	MTOR
F5 ^a	FCD 2b	m	1	14	457	Focal	F	LMT, PHT, VPA	MTOR
F6 ^a	FCD 2b	m	3	5	152	Focal	F	PHT, VPA, VGB	MTOR
F7 ^a	FCD 2b	m	4	18	91	Focal	F	CLB, OXC, VPA	NA
F8 ^a	FCD 2b	m	2	18	91	Focal	F	CBZ, LCS, LMT, VPA	MTOR
F9 ^a	FCD 2b	m	12	17	1	Focal	F	LMT, OXC	MTOR
F10 ^a	FCD 2b	m	3	5	304	Focal	O	CBZ, CLB	NA
F12 ^a	FCD 2b	f	4	10	91	Focal	F	OXC, VPA	TSC1
F15 ^a	FCD 2b	f	0	11	17	Focal	F	LMT, OXC	NA
F16 ^a	FCD 2b	m	0	6	609	Focal	F	VPA	NA
F18 ^a	FCD 2b	m	15	18	91	Focal	F	CNP, LEV, OXC	NA
F21 ^a	FCD 2b	m	3	8	913	Focal	P	CBZ, LMT, VPA	MTOR
F26 ^a	FCD 2b	f	3	5	122	Focal	F	OXC, TPM, VGB	NA
F28 ^a	FCD 2b	f	1	9	30	Focal	F	OXC	NA
F35 ^a	FCD 2b	f	1	8	30	Focal	F	CBZ, PER, PHT	NA
F37 ^a	FCD 2b	f	10	10	30	Focal	F	CLB, TPM	NA
F40 ^a	FCD 2b	f	3	8	609	Focal	O	CBZ, CLB, LEV, OXC, VPA	NA

F59 ^a	FCD 2b	m	3	10	30	Focal	F	CBZ, VPA	MTOR
F60 ^a	FCD 2b	f	8	18	61	Focal	F	CBZ, CLB, LMT, TPM, VPA	MTOR
F61 ^a	FCD 2b	f	2	17	1217	Focal	P	CLB, LCS, LMT, PER, VGB	NA
T1 ^a	TSC	f	0	13	122	Focal	F	CBZ, CLB, LMT	TSC2
T8 ^a	TSC	m	6	14	122	Focal	F	CBZ, VPA	TSC1
T17 ^a	TSC	m	0	5	91	Focal	F	VPA, VGB	TSC2
T20 ^a	TSC	f	0	8	122	Focal	F	CBZ, CLB	TSC2
T21 ^a	TSC	f	8	9	122	Focal	F	CLB, OXC	TSC2
T25 ^a	TSC	f	0	17	22	Focal	P	LEV, OXC, VPA, VGB	TSC2
T27 ^a	TSC	f	5	11	30	Focal	F	CLB, TPM, VGB	TSC2

m = male, f = female, y = year, C = cortex, F = frontal, T = temporal, P = parietal, O = occipital, CBZ = Carbamazepine, CLB = Clobazam, CNP = Clonazepam, LCS = Lacosamide, LEV = Levetiracetam, LMT = Lamotrigine, OXC = Oxcarbazepine, PB = Phenobarbital, PER = Perampanel, PHT = Phenytoin, TPM = Topiramate, VGB = Vigabatrin, VPA = Valproic acid, ZNS = Zonisamide,
^a = RNA sequencing