Supplementary Methods

Total Gray Matter RNA Extraction

The gray-white matter boundary of DLPFC area 9 in a tissue block from each subject was carefully scored with a scalpel blade where the gray matter had uniform thickness and the gray-white matter boundary was easily delineated. The scored gray matter region of the tissue block was then digitally photographed, and the number of tissue sections (40 μm) required to collect ~30 mm^3 of gray matter was determined for each subject. The calculated number of required tissue sections for each subject was then cut by cryostat, and gray matter was separately collected into a tube containing TRIzol reagent in a manner that ensured minimal white matter contamination and excellent RNA preservation. Complementary DNA (cDNA) was synthesized from standardized dilutions of total RNA (10 ng/μl) for each subject.

Microarray Analysis

For laser microdissection of individual neurons, cryostat sections of DLPFC area 9 were dual-labeled with lectin Vicia villosa agglutinin (VVA) and anti-NeuN antibody in order to visualize parvalbumin interneuron-selective perineuronal nets and all neurons, respectively. RNA was extracted from pooled samples of 360 VVA-labeled neurons, converted into cDNA, amplified, labeled with biotin, and loaded on Affymetrix GeneChip HT HG-U133+ PM Array Plate (Affymetrix, Santa Clara, CA). Scanned images were segmented and converted into DAT files, using Microarray Analysis Suite 5.0. Segmented images were normalized and log2-transformed using GeneChip Robust Multiarray Average (1).

Genotype Analysis

DNA was isolated from brain tissue using standard techniques and genotyped by the Illumina Infinium HumanOmniExpressExome array (Illumina, INC, San Diego, CA). Genotype calls were retained if they passed quality control for samples and SNPs, which yielded 767,368

SNPs for all samples. To impute a larger set of genotypes per sample, haplotypes were inferred and variants were imputed in 5Mb segments by Impute v2.3.1 (2) with the 1000 Genomes Phase 1 integrated reference panel (3). Of the 4 SNPs evaluated in this study, 3 were genotyped directly and one was imputed (rs4673628). Due to missing genotype information, some subjects were excluded from the analyses.

Statistical Analysis

Repeated measures model was implemented in SAS PROC MIXED using the REML method in order to analyze layer-specific expression of PV, CR and ErbB4 splicing variants. In the REML method, the Kenward-Roger degrees of freedom approximation method was used to compute the denominator degrees of freedom (4). Paired and unpaired repeated measures models included mRNA level as the dependent variable; diagnosis, cortical layer, and the interaction between diagnosis and cortical level as main effects. Covariates were included in each model as described for the ANCOVA model.

The potential influence of co-morbid factors (e.g., diagnosis of schizoaffective disorder; history of substance dependence or abuse; nicotine use at time of death; antipsychotic, antidepressant or benzodiazepine and/or sodium valproate use at time of death; or death by suicide) on the levels of JM-a, JM-b, CYT-1 and CYT-2 mRNAs in layer 4 of schizophrenia subjects were assessed by using an ANCOVA model with each factor as the main effect and sex, age, brain pH, RIN, PMI, storage time as covariates.

Relationships between the ratios of minor to major ErbB4 splicing variants and CR or PV mRNA levels in layers 2 or 4, respectively, were assessed by Pearson's correlation analysis with the Bonferroni-corrected alpha level of 0.006 (5).

References

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Table S1. Demographic, postmortem, and clinical characteristics of human subjects used in this study.

Subject Group[a]		Case #	S/R/A[b]	PMI[c]	pH	RIN	Storage time[d]	Cause of death[e]	*DSM IV* Diagnoses[f] Primary Substance[g]		Anti-psychotics ATOD	Anti-depressants ATOD	BZ/VPA ATOD[h]
1	C	592	M/B/41	22.1	6.7	9	216	ASCVD	N				
	S	533	M/W/40	29.1	6.8	8.4	225	Accidental Asphyxiation	US		Y	N	N
2	C	567	F/W/46	15	6.7	8.9	220	Mitral valve prolapse	N				
	S	537	F/W/37	14.5	6.7	8.6	225	Suicide by hanging	SA		N	N	N
3	C	516	M/B/20	14	6.9	8.4	227	Homicide by gun shot	N				
	S	547	M/B/27	16.5	7	7.4	223	Heat stroke	SA		Y	Y	Y
4	C	630	M/W/65	21.2	7	9	210	ASCVD	N				
	S	566	M/W/63	18.3	6.8	8	220	ASCVD	US	AAR	Y	Y	Y
5	C	604	M/W/39	19.3	7.1	8.6	213	Hypoplastic coronary artery	N				
	S	581	M/W/46	28.1	7.2	7.9	218	Accidental combined drug overdose	PS	ADC; OAC	Y	N	Y
6	C	546	F/W/37	23.5	6.7	8.6	224	ASCVD	N				
	S	587	F/B/38	17.8	7	9	216	Myocardial hypertrophy	US	AAR	Y	N	Y
7	C	551	M/W/61	16.4	6.6	8.3	222	Cardiac tamponade	N				
	S	625	M/B/49	23.5	7.3	7.6	210	ASCVD	DS	AAC	Y	Y	N
8	C	685	M/W/56	14.5	6.6	8.1	203	Hypoplastic coronary artery	N				
	S	622	M/W/58	18.9	6.8	7.4	210	Right MCA infarction	US		N	N	N
9	C	681	M/W/51	11.6	7.2	8.9	203	Hypertrophic cardiomyopathy	N				
	S	640	M/W/49	5.2	6.9	8.4	208	Pulmonary embolism	PS		Y	Y	N
10	C	806	M/W/57	24	6.9	7.8	182	Pulmonary embolism	N				
	S	665	M/B/59	28.1	6.9	9.2	206	Intestinal hemorrhage	PS	ADC	Y	Y	N
11	C	822	M/B/28	25.3	7	8.5	179	ASCVD	N				
	S	787	M/B/27	19.2	6.7	8.4	185	Suicide by gun shot	SA	ODC	Y	N	N
12	C	727	M/B/19	7	7.2	9.2	196	Trauma	N				
	S	829	M/W/25	5	6.8	9.3	177	Suicide by drug overdose	SA	ADC; OAR	N	N	Y
13	C	871	M/W/28	16.5	7.1	8.5	169	Trauma	N				
	S	878	M/W/33	10.8	6.7	8.9	168	Myocardial fibrosis	DS	ADC	Y	Y	Y
14	C	575	F/B/55	11.3	6.8	9.6	218	ASCVD	N				
	S	517	F/W/48	3.7	6.7	9.3	227	Intracerebral hemorrhage	DS	ADC	Y	N	N
15	C	700	M/W/42	26.1	7	8.7	200	ASCVD	N				
	S	539	M/W/50	40.5	7.1	8.1	224	Suicide by combined drug overdose	SA	ADR	Y	Y	Y
16	C	988	M/W/82	22.5	6.2	8.4	147	Trauma	N				
	S	621	M/W/83	16	7.3	8.7	211	Accidental asphyxiation	US		N	N	N

Subject Group[a]		Case #	S/R/A[b]	PMI[c]	pH	RIN	Storage time[d]	Cause of death[e]	*DSM IV* Diagnoses[f] Primary Substance[g]		Anti-psychotics ATOD	Anti-depressants ATOD	BZ/VPA ATOD[h]
17	C	686	F/W/52	22.6	7	8.5	202	ASCVD	N				
	S	656	F/B/47	20.1	7.3	9.2	207	Suicide by gun shot	SA	ADC	Y	N	N
18	C	634	M/W/52	16.2	7	8.5	209	ASCVD	N				
	S	722	M/B/45	9.1	6.7	9.2	197	Upper GI bleeding	US	ODR; OAR	Y	N	N
19	C	852	M/W/54	8	6.8	9.1	172	Cardiac tamponade	N				
	S	781	M/B/52	8	6.7	7.7	187	Peritonitis	SA	ADR	Y	Y	N
20	C	987	F/W/65	21.5	6.8	9.1	147	ASCVD	N				
	S	802	F/W/63	29	6.4	9.2	182	Right ventricular dysplasia	SA	ADC; ODR	Y	N	Y
21	C	818	F/W/67	24	7.1	8.4	180	Anaphylactic reaction	N				
	S	917	F/W/71	23.8	6.8	7	160	ASCVD	US		Y	N	N
22	C	857	M/W/48	16.6	6.7	8.9	170	ASCVD	N				
	S	930	M/W/47	15.3	6.2	8.2	157	ASCVD	DS	ADR; OAR	Y	N	Y
23	C	739	M/W/40	15.8	6.9	8.4	195	ASCVD	N				
	S	933	M/W/44	8.3	5.9	8.1	156	Myocarditis	DS		Y	Y	Y
24*#	C	1047	M/W/43	13.8	6.6	9	129	ASCVD	N				
	S	1209	M/W/35	9.1	6.5	8.7	110	Diphenhydramine overdose	SA		Y	N	N
25*#	C	1086	MW/51	24.2	6.8	8.1	123	ASCVD	N				
	S	10025	MB/52	27.1	6.7	7.8	102	ASCVD	DS	OAR	N	N	N
26*#	C	1092	F/B/40	16.6	6.8	8	123	Mitral valve prolapse	N				
	S	1178	F/B/37	18.9	6.1	8.4	114	Pulmonary embolism	SA		Y	N	Y
27*	C	10005	M/W/42	23.5	6.7	7.4	111	Trauma	N				
	S	1256	M/W/34	27.4	6.4	7.9	103	Hanging	US		Y	N	N
28*#	C	1336	M/W/65	18.4	6.8	8	88	Cardiac tamponade	N				
	S	1173	M/W/62	22.9	6.4	7.7	114	ASCVD	DS	ADR	Y	N	N
29*#	C	1122	M/W/55	15.4	6.7	7.9	119	Cardiac tamponade	N				
	S	1105	M/W/53	7.9	6.2	8.9	121	ASCVD	SA		Y	N	N
30*	C	1284	M/W/55	6.4	6.8	8.7	98	ASCVD	N				
	S	1188	M/W/58	7.7	6.2	8.4	113	ASCVD	US	AAR; OAR	Y	N	Y
31*	C	1191	M/B/59	19.4	6.2	8.4	112	ASCVD	N				
	S	1263	M/W/62	22.7	7.1	8.5	102	Asphyxiation	US	ADR	Y	Y	N
32*#	C	970	M/W/42	25.9	6.4	7.2	141	ASCVD	N				
	S	1222	M/W/32	30.8	6.4	7.5	108	Combined drug overdose	US	AAC	Y	Y	N
33*	C	10003	M/W/49	21.2	6.5	8.4	112	Trauma	N				
	S	1088	M/W/49	21.5	6.5	8.1	124	Combined drug overdose	US	ADC; OAC	Y	Y	N
34*	C	1247	F/W/58	22.7	6.4	8.4	104	ASCVD	N				
	S	1240	F/B/50	22.9	6.3	7.7	105	ASCVD	US	ADR	Y	N	N

Subject Group[a]		Case #	S/R/A[b]	PMI[c]	pH	RIN	Storage time[d]	Cause of death[e]	*DSM IV* Diagnoses[f] Primary Substance[g]		Anti-psychotics ATOD	Anti-depressants ATOD	BZ/VPA ATOD[h]
35*#	C	1324	M/W/43	22.3	7	7.3	90	Aortic dissection	N				
	S	10020	M/W/38	28.8	6.6	7.4	104	Salicylate overdose	PS	AAC; OAC	Y	Y	Y
36*#	C	1099	F/W/24	9.1	6.5	8.6	122	Cardiomyopathy	N				
	S	10023	F/B/25	20.1	6.7	7.4	103	Suicide by drowning	DS		Y	Y	Y
37*#	C	1307	M/B/32	4.8	6.7	7.6	93	ASCVD	N				
	S	10024	M/B/37	6	6.1	7.5	103	ASCVD	PS		N	N	N
38*#	C	1391	F/W/51	7.8	6.6	7.1	79	ASCVD	N				
	S	1189	F/W/47	14.4	6.4	8.3	113	Combined drug overdose	SA	AAR	Y	Y	Y
39*#	C	1282	F/W/39	24.5	6.8	7.5	99	ASCVD	N				
	S	1211	F/W/41	20.1	6.3	7.8	110	Sudden unexpected death	SA		Y	Y	N
40*#	C	1159	M/W/51	16.7	6.5	7.6	116	ASCVD	N				
	S	1296	M/W/48	7.8	6.5	7.3	96	Pneumonia	US		Y	Y	N
41*#	C	1326	M/W/58	16.4	6.7	8	90	ASCVD	N				
	S	1314	M/W/50	11	6.2	7.2	93	ASCVD	US		Y	Y	Y
42*#	C	902	M/W/60	23.6	6.7	7.7	155	ASCVD	N				
	S	1361	M/W/63	23.2	6.4	7.7	85	Cardiomyopathy	SA	ODC	Y	N	Y
43*	C	1374	M/W/43	21.7	6.6	7.2	85	ASCVD	N				
	S	904	M/W/33	28	6.2	7.1	156	Pneumonia	SA		Y	N	Y
44*	C	1555	M/W/17	15.1	6.9	7.9	50	Trauma	N				
	S	1649	M/B/17	21.4	6.9	8.1	35	Hanging	US		Y	Y	N
45*	C	1268	M/B/49	19.9	7.1	7.9	102	ASCVD	N				
	S	1230	M/W/50	16.9	6.6	8.2	108	Doxepin overdose	US		Y	Y	N
46*	C	1466	F/B/64	20	6.7	8.8	67	Trauma	N				
	S	1341	F/W/44	24.5	6.6	8.8	89	Trauma	SA	ODC	Y	N	Y
47*	C	1518	M/W/50	20.7	6.4	7.7	56	ASCVD	N				
	S	1367	M/W/47	28.9	6.6	7.2	86	Combined drug overdose	SA	ADC; ODR	N	N	N
48*	C	1386	M/W/46	21.2	6.7	8.3	82	ASCVD	N				
	S	1420	M/W/47	23.4	6.8	8.2	75	Jump	SA	AAR; ODC; OAR	Y	Y	N
49*	C	1472	M/W/61	23.8	6.5	8	66	Pulmonary embolism	N				
	S	1453	M/W/62	11.1	6.4	8.2	69	Trauma	PS	ADR	N	N	Y
50*	C	1026	M/W/59	19.8	6.3	7.4	134	ASCVD	N				
	S	1454	M/W/59	24.1	6.1	7.6	69	Trauma	PS	AAR; ODC	Y	Y	N
51*	C	694	M/W/38	20.7	7	7.7	195	Subarachnoid hemorrhage	N				
	S	1455	M/W/42	8.2	6.4	7.7	69	Peritonitis	PS	AAR; OAC	Y	N	Y
52*	C	1350	M/W/21	24.2	6.4	7.3	88	Trauma	N				
	S	1474	M/W/37	39.9	6.7	7	66	Hanging	SA	ADR	N	N	N

Subject Group[a]		Case #	S/R/A[b]	PMI[c]	pH	RIN	Storage time[d]	Cause of death[e]	*DSM IV* Diagnoses[f] Primary Substance[g]		Anti-psychotics ATOD	Anti-depressants ATOD	BZ/VPA ATOD[h]
53*	C	1792	F/W/36	28.1	6.5	7.5	10	Pulmonary embolism	N				
	S	1506	F/W/47	14.1	6.6	7.5	60	Combined drug overdose	SA	ADC	Y	Y	N
54*	C	1524	M/W/66	9.4	6.4	8.1	55	Intestinal infarction	N				
	S	1542	M/W/65	17.4	6.7	7.8	52	Combined drug overdose	PS		Y	Y	Y
55*	C	1270	F/W/73	19.7	6.7	7.7	102	Trauma	N				
	S	1579	F/W/69	16.1	6.7	7.7	46	ASCVD	SA	ADR; ODC	Y	N	Y
56*	C	1372	M/W/37	20.5	6.6	9	86	Asphyxiation	N				
	S	1581	M/W/32	18.4	6.8	9	45	ASCVD	PS	ODC; OAC	Y	Y	N
57*	C	1543	F/W/45	17.9	6.8	7.4	52	Subarachnoid hemorrhage	N				
	S	10026	F/W/46	23.8	6.6	7.6	104	Thermal injuries	US		Y	Y	N
58*	C	1583	M/W/58	19.1	6.8	8.2	45	Trauma	N				
	S	1686	M/B/56	14.1	6.2	8.3	28	ASCVD	PS	AAR	Y	Y	Y
59*	C	1554	M/W/50	23.2	6.5	7.6	50	ASCVD	N				
	S	1691	M/W/51	31.9	6.6	7.7	27	Combined drug overdose	PS	ADR; ODC	Y	N	Y
60*	C	1635	M/W/66	25.3	6.8	8.2	38	Cardiac tamponade	N				
	S	1706	M/B/60	28.1	6.8	8.4	23	Sepsis	SA	AAR; ODC; OAR	Y	N	N
61*	C	1384	M/W/67	21.9	6.6	7	83	ASCVD	N				
	S	1712	M/W/63	15.1	6.2	7.1	22	ASCVD	SA	ADR; ODC	Y	Y	Y
62*	C	1558	M/W/54	24.4	6.9	7.7	50	ASCVD	N				
	S	1734	M/W/54	28.6	6.1	7.7	19	Pneumonia	US	AAR; ODC; OAR	Y	N	N

*****: Subject pairs used for layer-specific qPCR; #: Subject pairs used for microarray; **a**: C, normal comparison; S, schizophrenia; **b**: A, age in years; B, black; F, female; M, male; R, race; S, sex; W, white; **c**: PMI, postmortem interval (hours); **d**: Storage time (months) at -80C; **e**: ASCVD, arteriosclerotic cardiovascular disease; MCA, middle coronary artery; **f**: DS, disorganized schizophrenia; PS, paranoid schizophrenia; SA, schizoaffective disorder; US, undifferentiated schizophrenia; **g**: ADC, alcohol dependence, current at time of death; ADR, alcohol dependence, in remission at time of death; AAC, alcohol abuse, current at time of death; AAR, alcohol abuse, in remission at time of death; ODC, other substance dependence, current at time of death; ODR, other substance dependence, in remission at time of death; OAC, other substance abuse, current at time of death; OAR, other substance abuse, in remission at time of death; **h**: BZ/VPA ATOD; BZ, benzodiazepines; VPA, Sodium valproate; ATOD, at time of death; Y, yes; N, no.

Table S2. Oligonucleotide sequences of forward and reverse primers for ErbB4 splicing variants, pan-ErbB4 and MIAT.

Gene	Accession #	Forward Primer	Reverse Primer	Amplicon size (bp)	Position
CYT-1	NM_005235	TTGGACACAGCCCTCCTC	GGGCACAGACACTCCTTGT	98	3241~3338
CYT-2	NM_001042599	TGACTCGAATAGGAACCAGTTTG	GGGTGCTACTGTCCTCTTGG	206	3221~3426
JM-a	NM_001042599	TTAAAGATGGCCCAAACTGTG	CCCGTCCATGGGTAGTAAAT	172	1846~2017
JM-b	XM_005246377	AAAGATGGCCCAAACTGTGT	ATCAGGCCGATGCAGTCTT	161	2375~2535
Pan-ErbB4	NM_001042599	GACCAATGTCTGTCGTGTCG	TCAAACTCCCGAAATTCACC	89	1650~1738
MIAT	NR_003491.3	GGTCCATGTGGTTAGGGTTG	GGGTTAGTTGGTTGGCAGAA	227	4971~5197

Table S3. Summary statistics comparing the levels of transcripts between subject groups in total gray matter, layer 2 or 4 by paired ANCOVA or paired repeated measures models. Unpaired ANCOVA or unpaired repeated measures models yielded same statistical significance as the respective paired model.

Transcript	**% change in schizophrenia**			**ANCOVA**						**Repeated Measures**			
	Total Gray Matter	*Layer 2*	*Layer 4*	*Total Gray Matter*		*Layer 2*		*Layer 4*		*Layer 2*		*Layer 4*	
				F	p	F	p	F	p	F	p	F	p
PV		-9.9%	-19.5%			$F_{1,38}$=1.35	0.253	$F_{1,38}$=14.6	<0.001	$F_{1,114}$=0.06	0.808	$F_{1,114}$=27.2	0.001
CR		-6.1%	-0.4%			$F_{1,38}$=1.95	0.171	$F_{1,38}$=0.002	0.961	$F_{1,114}$=2.64	0.107	$F_{1,114}$=0.06	0.808
JM-a	+10.9%	+10.3%	+22.1%	$F_{1,61}$=7.49	0.008	$F_{1,38}$=1.71	0.199	$F_{1,38}$=4.62	0.038	$F_{1,97.3}$=1.41	0.238	$F_{1,97.3}$=6.27	0.014
JM-b	-11.5%	-15.0%	-17.0%	$F_{1,61}$=17.1	<0.001	$F_{1,37}$=3.15	0.084	$F_{1,38}$=15.1	0.001	$F_{1,65.1}$=5.58	0.021	$F_{1,65.1}$=6.54	0.013
CYT-1	+4.7%	-1.1%	+19.3%	$F_{1,61}$=0.97	0.328	$F_{1,38}$=0.02	0.902	$F_{1,38}$=7.07	0.011	$F_{1,75.8}$=0.02	0.890	$F_{1,75.8}$=4.87	0.030
CYT-2	-10.0%	-3.2%	-10.2%	$F_{1,60}$=12.3	<0.001	$F_{1,38}$=0.23	0.635	$F_{1,38}$=3.98	0.053	$F_{1,98.3}$=0.29	0.592	$F_{1,98.3}$=2.73	0.101
Pan-ErbB4	+3.9%	+1.3%	-6.6%	$F_{1,61}$=3.39	0.071	$F_{1,38}$=0.12	0.727	$F_{1,38}$=1.92	0.174	$F_{1,81.5}$=0.09	0.761	$F_{1,81.5}$=2.28	0.135
MIAT	+12.6%			$F_{1,60}$=6.79	0.012								

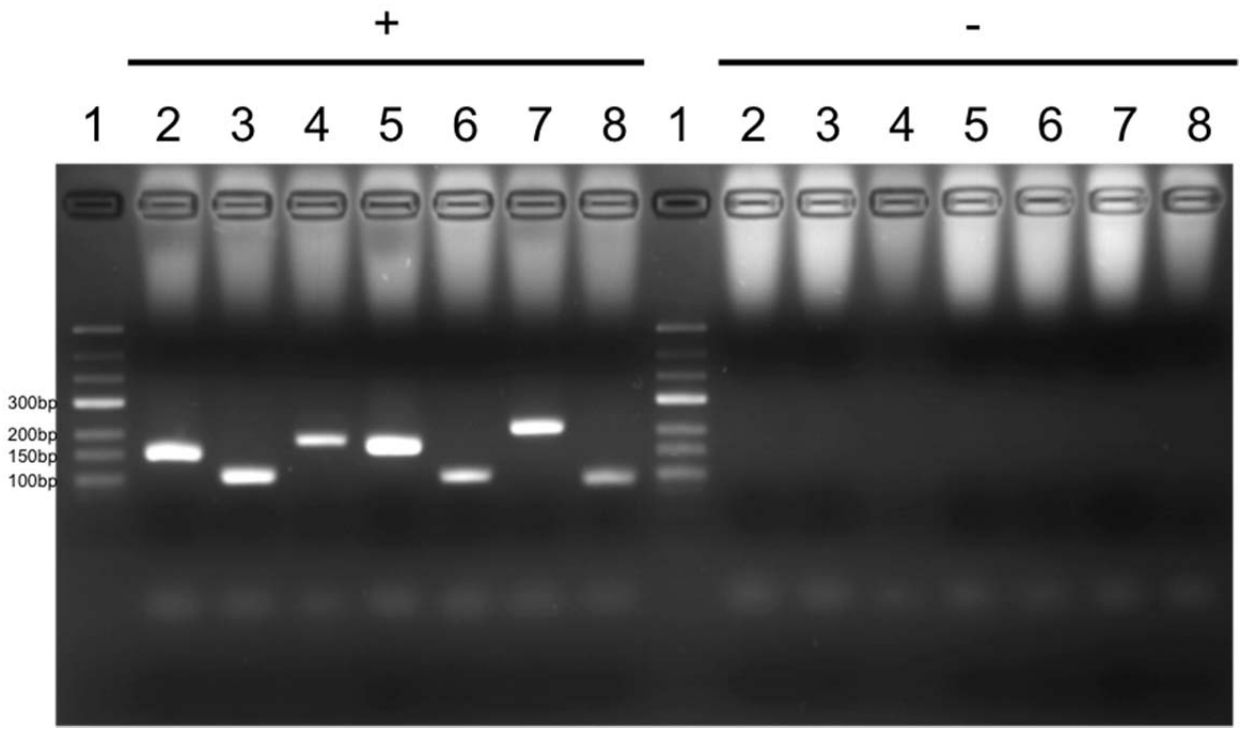
Table S4. Relationship between the ratios of ErbB4 splicing variants and the levels of CR or PV mRNA and in layer 2 or 4, respectively.

	CR in layer 2				**PV in layer 4**			
	Healthy Comparison		Schizophrenia		Healthy Comparison		Schizophrenia	
	r	p	r	p	r	p	r	p
CYT-1/CYT-2	-0.243	0.135	-0.125	0.448	-0.243	0.137	-0.127	0.442
JM-a/JM-b	-0.275	0.091	-0.132	0.424	0.017	0.920	**-0.502**	**<0.001**

Table S5. Summary statistics displaying the main effect of genotypes and interactions between genotypes and diagnosis on the ratios of JM-a/JM-b variants or CYT-1/CYT-2 variants.

	JM-a/JM-b gray matter		**JM-a/JM-b layer 4**			**CYT-1/CYT-2 gray matter**		**CYT-1/CYT-2 layer 4**	
Genotype	Main effect	Interaction with diagnosis	Main effect	Interaction with diagnosis	Genotype	Main effect	Interaction with diagnosis	Main effect	Interaction with diagnosis
rs4673628	$F_{2,109}$=0.289 P=0.750	$F_{2,109}$=0.192 P=0.825	$F_{2,68}$=0.767 P=0.468	$F_{2,68}$=1.646 P=0.200	rs7598440	$F_{2,114}$=0.993 P=0.374	$F_{2,114}$=1.026 P=0.362	$F_{2,71}$=0.952 P=0.391	$F_{2,71}$=0.855 P=0.430
					rs839523	$F_{2,114}$=0.031 P=0.969	$F_{2,114}$=0.152 P=0.859	$F_{2,71}$=1.562 P=0.271	$F_{2,71}$=0.404 P=0.669
					rs707284	$F_{2,114}$=0.266 P=0.767	$F_{2,114}$=0.046 P=0.955	$F_{2,71}$=2.532 P=0.087	$F_{2,71}$=0.255 P=0.776

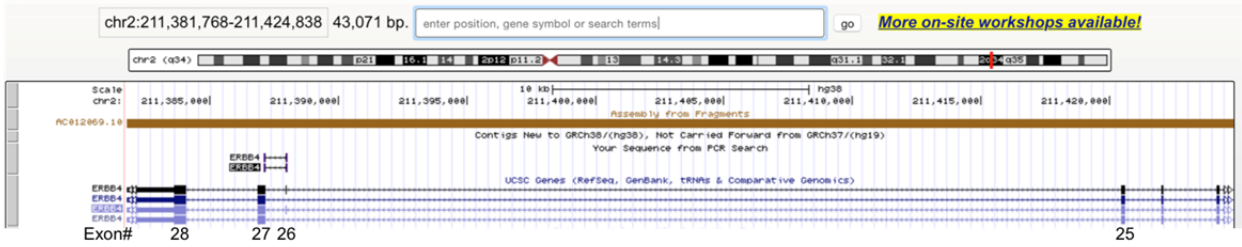
Figure S1



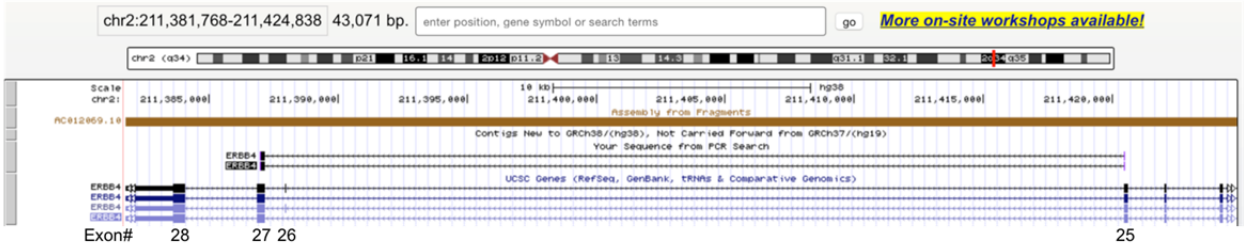
Lane	Gene	Predicted amplicon size
1	Ladder	
2	CR	145bp
3	PV	99bp
4	JM-a	172bp
5	JM-b	161bp
6	CYT-1	98bp
7	CYT-2	206bp
8	Pan-ErbB4	89bp

Figure S2

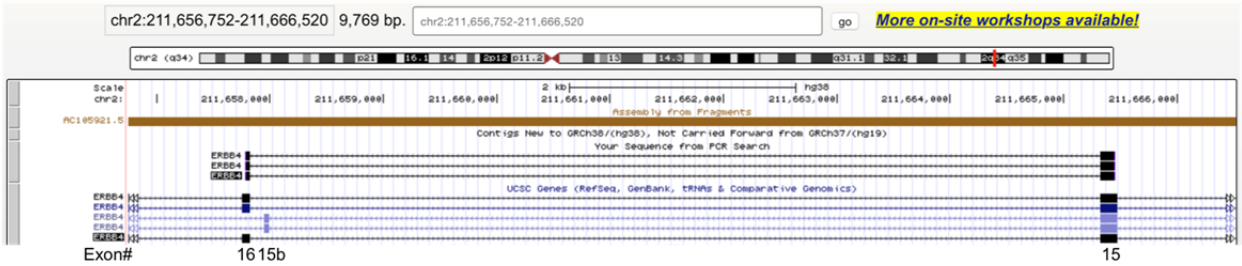
CYT-1 PCR Blast



CYT-2 PCR blast



JM-a PCR blast



JM-b PCR blast

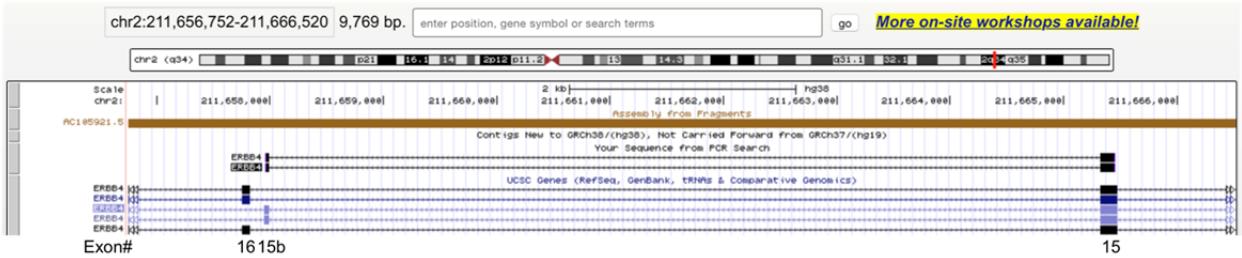


Figure S3

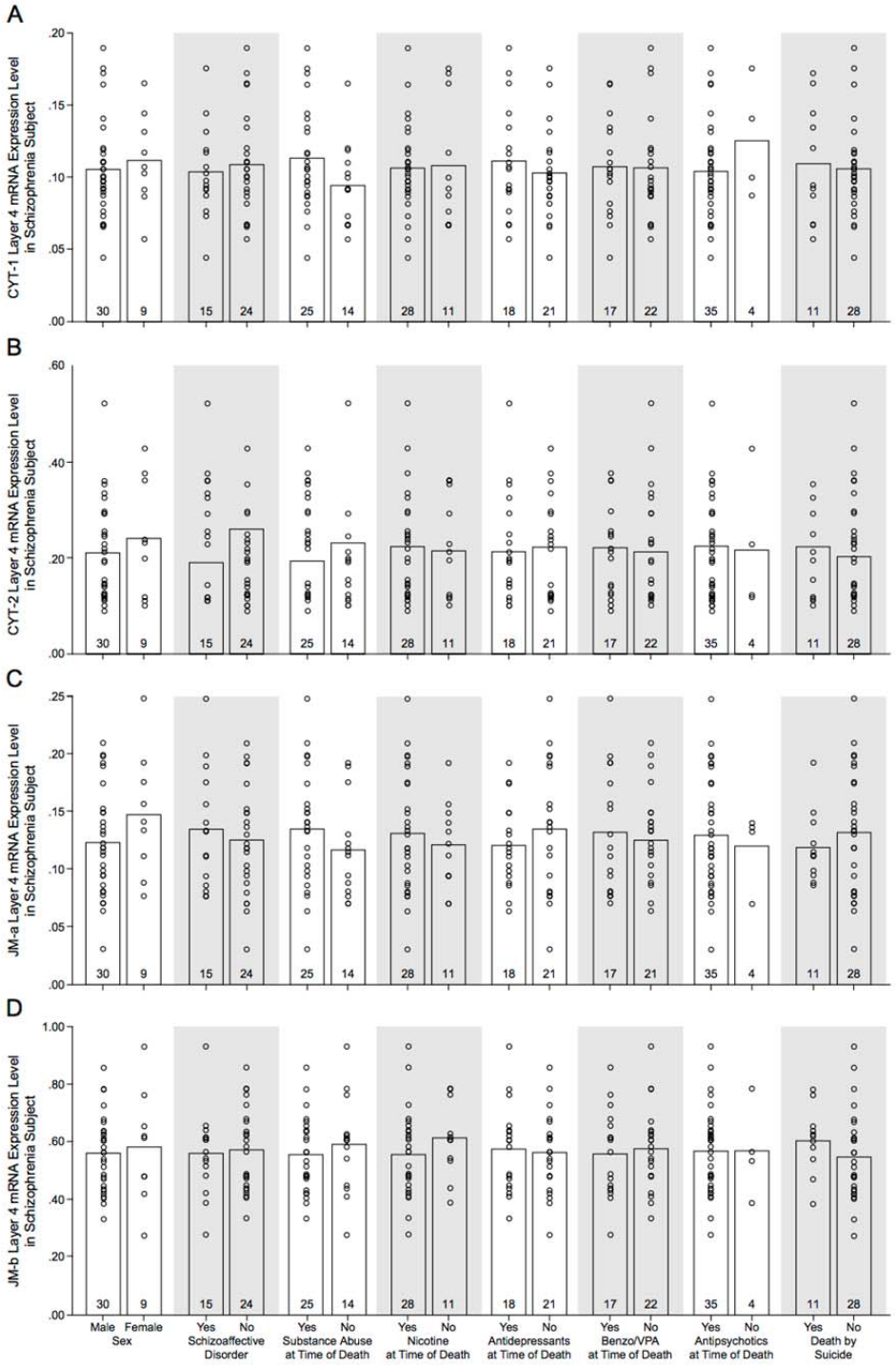

A
CYT-1 Layer 4 mRNA Expression Level in Schizophrenia Subject
.20
.15
.10
.05
.00
30 9 15 24 25 14 28 11 18 21 17 22 35 4 11 28
B
CYT-2 Layer 4 mRNA Expression Level in Schizophrenia Subject
.60
.40
.20
.00
30 9 15 24 25 14 28 11 18 21 17 22 35 4 11 28
C
JM-a Layer 4 mRNA Expression Level in Schizophrenia Subject
.25
.20
.15
.10
.05
.00
30 9 15 24 25 14 28 11 18 21 17 21 35 4 11 28
D
JM-b Layer 4 mRNA Expression Level in Schizophrenia Subject
1.00
.80
.60
.40
.20
.00
30 9 15 24 25 14 28 11 18 21 17 22 35 4 11 28
Male Female
Sex
Yes No
Schizoaffective Disorder
Yes No
Substance Abuse at Time of Death
Yes No
Nicotine at Time of Death
Yes No
Antidepressants at Time of Death
Yes No
Benzo/VPA at Time of Death
Yes No
Antipsychotics at Time of Death
Yes No
Death by Suicide

Figure Legends

Figure S1. Gel electrophoresis displaying the post-qPCR amplicon products for calretinin, parvalbumin, ErbB4 splicing variants and Pan-ErbB4 transcripts. + : qPCR with cDNA. - : qPCR without cDNA. Ladder : GeneRuler Low Range DNA Ladder, Life Technologies Cat#SM1193.

Figure S2. Results of UCSC In-Silico PCR blast (https://genome.ucsc.edu/cgi-bin/hgPcr) for each primer pair targeting ErbB4 splicing variants in relation to the alternative exons of ErbB4 transcripts. Note that the primer pair targeting CYT-1 variant includes exon 26, whereas the pair targeting CYT-2 variant excludes it. The exon 16 or 15b is selectively spanned for the primer pair targeting JM-a or JM-b variants, respectively.

Figure S3. In each pair of plots, schizophrenia subjects are grouped by potential confounding factors listed on the x-axis. Circles represent the levels of ErbB4 splicing variants for individual subjects and the bars represent mean ErbB4 splicing variant levels for the indicated group. Numbers listed for each bar represent the number of schizophrenia subjects for each condition. Levels of CYT-1 (**A**), CYT-2 (**B**), JM-a (**C**) and JM-b (**D**) in layers 4 of schizophrenia subjects did not differ significantly (all F values <5.4, all p-values > 0.182) as a function of sex, diagnosis of schizoaffective disorder, history of substance dependence or abuse, nicotine use at the time of death, use of antipsychotics, antidepressants, or benzodiazepines and/or sodium valproate at the time of death, or death by suicide.