

**Supplementary Table S1.**

Comparison of demographic and clinical characteristics between Schizophrenia and Healthy controls in Chinese (yellow race)

characteristics	Recent-onset schizophrenia (n=21)	Healthy controls (n=26)	P value
Age(year)	44.0±12.32	42.46±10.28	0.708
Education(year)	10.00±3.62	10.65±3.82	0.665
BMI(body mass index)	21.06±2.74	20.56±3.96	0.460
Gender(male/female)	8/13	10/16	0.980
Smokers	6(28.6%)	7(26.9%)	0.9

All values are means ± SDs unless otherwise indicated. Age, Education and BMI were calculated by the Mann-Whitney U test. Gender and Smokers were calculated by the chi-square test.

**Supplementary Table S2**

PCR primer for plasmid construction

plasmid	Oilgo sequence(5'>3')
pcDNA3.1-linc01930	F-CCGGAATTCCTCCAAAAGTGGAACAATTCA
	R-CGCGGATCCTTGCTGTTTAAATCATATTT
pGL3-Basic-linc01930-promoter	F-CGGGGTACCGAAAAAGTTCCACTTCACCAC
	R-CCCAAGCTTCTATTAAGAATAATGCTGCT
pXJ40-HA-HERV-W-ENV	F-CCGGAATTCGCCACCATGGCCCTCCCTTATC
	R-CCCAAGCTTCTAACTGCTTCCTGCTGAAT
pENTER-N-FLAG-cGAS	F-CGGGGTACCATGCAGCCTTGGCACGGAAAGGC
	R-CCCAAGCTTAAATTCATCAAAAAGTGGAAACT

**Supplementary Table S3.**

Primer sequence for qRT-PCR

Target gene	Oilgo sequence(5'>3')	Length ( bp )
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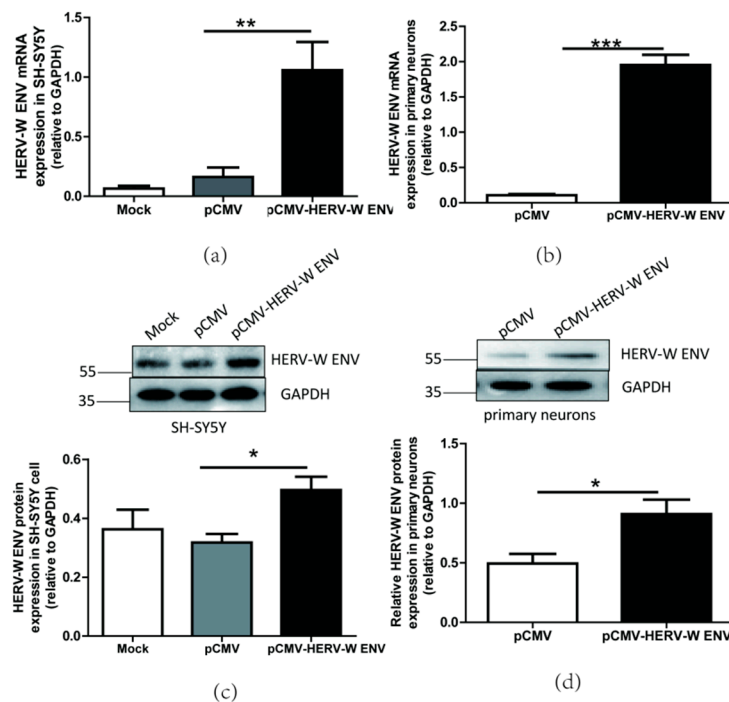
Human-U6	F-CTCGCTTCGGCAGCACA	96
	R-AACGCTTCACGAATTTGCGT	
Human-RPS14	F-GTGTGACTGGTGGGATGAAGGTAA	127
	R-AGTTTGATGTGTAGGGCGGTGAT	
Human-linc01930	F-GTATGACTTTATAGCCGTGA	130
	R-CTTAAACTGACGACCCTGA	
Human-ENV	F-CCATGCCGCTGTATGACCAG	109
	R-GGGTTCCTTAGAAAGACTCCT	
Human-cGAS	F-GGGAGCCCTGCTGTAACACTTCTTAT	187
	R-CCTTTGCATGCTTGGGTACAAGGT	
Human-STING	F-ACTGTGGGGTGCCTGATAAC	198
	R-TGGCAAACAAAGTCTGCAAG	
Human-IFN- $\beta$	F-GCTTGGATTCTACAAAGAAGCA	166
	R-ATAGATGGTCAATGCGGCGTC	
Human-GAPDH	F-ATGACATCAAGAAGGTGGTG	177
	R-CATACCAGGAAATGAGCTTG	
Mouse-cGAS	F-CAGGAAGGAACCGGACAAGC	134
	R-CCGACTCCCGTTTCTGCATT	
Mouse-STING	F-GCCCCAGCAAAACATCGAC	187
	R-CTGCTCAAGCCGATCCTCC	
Mouse-IFN- $\beta$	F-GCCCTCTCCATCAACTATAAGCA	123
	R-GATCTTGAAGTCCGCCCTGT	
Mouse-GAPDH	F-GCATCTTCTTGTGCAGTGCC	105
	R-GAGAAGGCAGCCCTGGTAAC	

**Supplementary Table S4.**

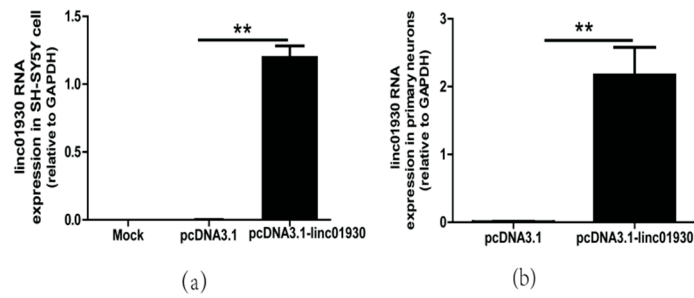
Antibodies and dilution

Antibody	brand	catalog	dilution
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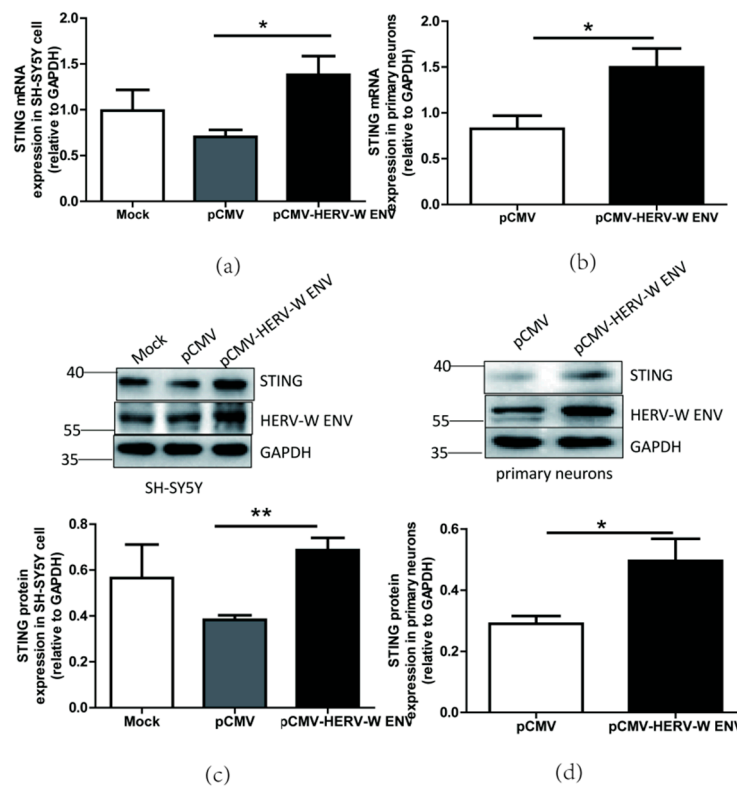
ERVW-1	ABclonal	A16522	1:1000 (WB)
cGAS	ABclonal	A8335	1:1000 (WB)
STING	ABclonal	A3262	1:1000 (WB)
IFNB1	ABclonal	A1575	1:1000 (WB)
P-IRF3	Abcam	AB76493	1:1000 (WB)
GAPDH	ABclonal	AC002	1:10000 (WB)
GFP-Tag	ABclonal	AE012	1:10000 (WB)
IgG-HRP	ABclonal	AS003	1:5000 (WB)
IgG-HRP	ABclonal	AS014	1:5000 (WB)
IgG-HRP	ABclonal	AS061	1:5000 (WB)



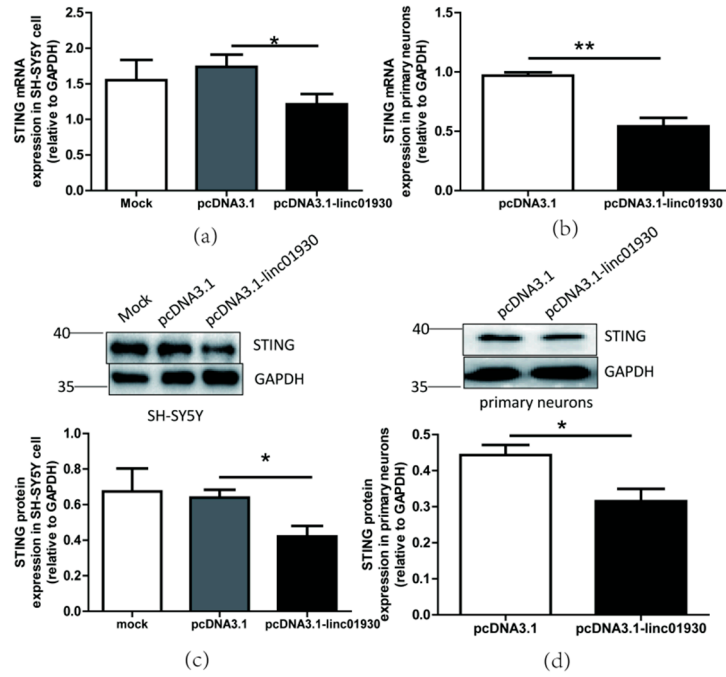
**Supplementary Figure S1.** Transfection efficiency of HERV-W ENV in neuronal cells. (a, b) The HERV-W ENV mRNA levels in HERV-W ENV transfected SH-SY5Y cells and primary neurons using qRT-PCR. (c, d) The HERV-W ENV protein levels in HERV-W ENV transfected SH-SY5Y cells and primary neurons using western blotting. Statistical analysis was performed by one-way analysis of variance (ANOVA). \* $P < 0.05$ ; \*\* $P < 0.01$ .



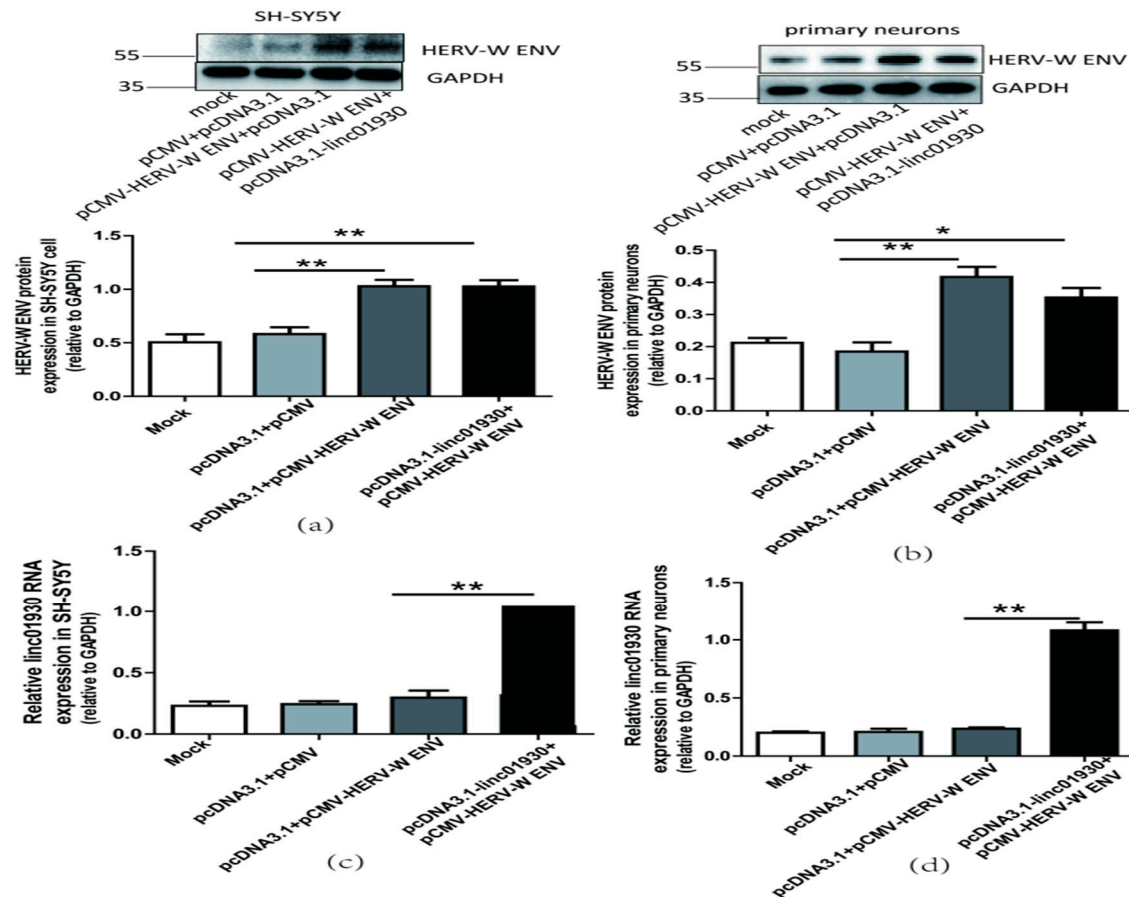
**Supplementary Figure S2.** Transfection efficiency of linc01930 in neuronal cells. (a) The linc01930 RNA levels in linc01930 transfected SH-SY5Y cells using qRT-PCR. (b) The linc01930 RNA levels in linc01930 transfected primary neurons using qRT-PCR. Statistical analysis was performed by one-way analysis of variance (ANOVA). \* $P < 0.05$ ; \*\* $P < 0.01$ .



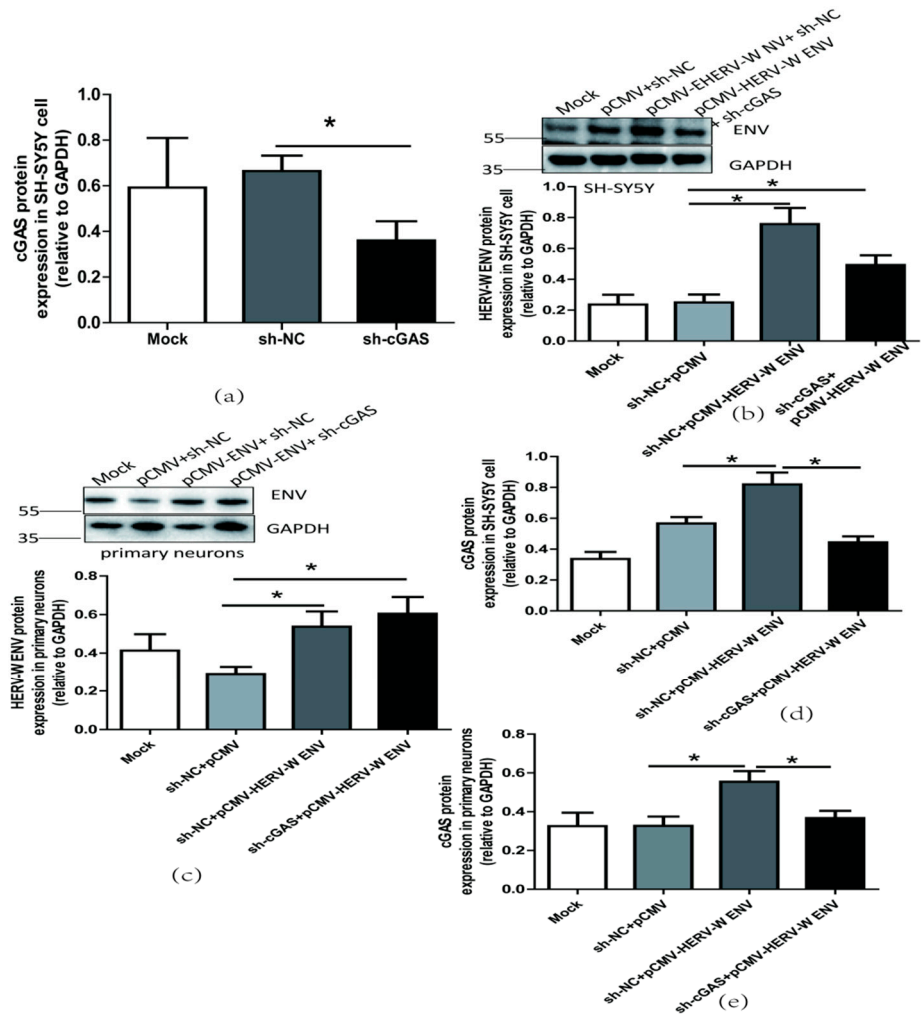
**Supplementary Figure S3.** HERV-W ENV activated STING expression in neuronal cells. (a, b) Respectively STING mRNA levels in HERV-W ENV transfected SH-SY5Y cells and primary neurons using qRT-PCR. (c, d) Respectively represent STING protein expression in HERV-W ENV transfected SH-SY5Y cell and primary neurons using western blotting. Statistical analysis was performed by one-way analysis of variance (ANOVA). \* $P < 0.05$ ; \*\* $P < 0.01$ .



**Supplementary Figure S4.** Linc01930 inhibited STING expression in neuronal cells. (a, b) Respectively STING mRNA levels in linc01930 transfected SH-SY5Y cells and primary neurons using qRT-PCR. (c, d) Respectively represent STING protein expression in linc01930 transfected SH-SY5Y cell and primary neurons using western blotting. Statistical analysis was performed by one-way analysis of variance (ANOVA). \* $P < 0.05$ ; \*\* $P < 0.01$ .



**Supplementary Figure S5.** Expression levels of HERV-W ENV and linc01930 in co-transfected neuronal cells. (a, b) Respectively representative western blots for HERV-W ENV in SH-SY5Y cell and primary neurons after co-transfected with linc01930 and HERV-W ENV. (c, d) Respectively representative linc01930 RNA levels in SH-SY5Y cell and primary neurons after co-transfected with linc01930 and HERV-W ENV. Statistical analysis was performed by one-way analysis of variance (ANOVA). \* $P < 0.05$ ; \*\* $P < 0.01$ .



**Supplementary Figure S6.** Expression levels of HERV-W ENV and cGAS in co-transfected neuronal cells. (a) Representative western blots for cGAS in SH-SY5Y cells after cGAS knockdown. (b, c) Respectively representative western blots for HERV-W ENV in SH-SY5Y cells and primary neurons after co-transfected with sh-cGAS and HERV-W ENV. (d, e) Respectively representative western blots for cGAS in SH-SY5Y cell and primary neurons after co-transfected with sh-cGAS and HERV-W ENV. Statistical analysis was performed by one-way analysis of variance (ANOVA). \* $P < 0.05$ .