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Supplemental information

Enhancer RNA lnc-CES1-1 inhibits decidual cell migration by interacting with RNA-binding protein FUS and activating PPARγ in URPL

Zhenyao Huang, Hao Yu, Guizhen Du, Li Han, Xiaomin Huang, Dan Wu, Xiumei Han, Yankai Xia, Xinru Wang, and Chuncheng Lu

Table S1. Primers for real time qPCR.

Gene		Sequences of primers (5'-3'）
GAPDH	forward	TGTGGGCATCAATGGATTTGG
	reverse	ACACCATGTATTCCGGGTCAAT
lnc-PARK7-1	forward	ACCATCACCTTAATGGGCTAGA
	reverse	TTATGGAACTATGGCACGGTTT
lnc-CES1-1	forward	ACACCTATGCACCGGCAAC
	reverse	TTAGCAGCATTCTTGATGTGTG
lnc-AC040934.1-2	forward	CCATGAAGGTGTTAAAGGGAAG
	reverse	GCAGGATGTAGGGATAGGTTTG
lnc-PEMT-2	forward	CCACAAGAGGAGCTGATTGAG
	reverse	CCTTTATTGGTGAATGGGAATG
lnc-RASD1-4	forward	GTCATCACCATCACCTTCAATC
	reverse	CAGTGCAAAGAAGCTGGAGAG
lnc-SPEG-2	forward	CTAGGGCTCTGCCCAATGT
	reverse	TCATCACCGTCTTCTTGGTATG
lnc-SLC9A8-3	forward	AAGGCATAGCCAACATGCTAAT
	reverse	GGAAGATAGAACAGGCAGCATC
lnc-ADAMTS1-2	forward	CCCTCATCCTGTAAGGTACTGC
	reverse	CAGTCGGTCACGAAAGATGTTA
lnc-RCAN1-1	forward	GGATGGAAACAAGTGGAAGATG
	reverse	TCTTTACCCAGGTTCTTGCATT
lnc-ERGIC1-4	forward	ATGTCCTCCACAATGTTAGCAA
	reverse	TCTCGAACTCCTGACCTATCTTT
CES1	forward	ACCCCTGAGGTTTACTCCACC
	reverse	TGCACATAGGAGGGTACGAGG
STAT4	forward	TGTTGGCCCAATGGATTGAAA
	reverse	GGAAACACGACCTAACTGTTCAT
lnc-CES1-1 (ChIP)	forward	CACCCAAGATCCCAAGGCG
	reverse	CACCACGTTTTCATGGGCAG
lnc-CES1-1 (ChIP)	forward	CTTCAGCACAGGGGATGAACA
	reverse	ATCACCTTTCTTCACCAGAACAG
lnc-CES1-1 (ChIP)	forward	AATGGGCTCGACCAGCTTC
	reverse	AGGTGACTCTTTCTAGCATGTGA
lnc-CES1-1 (RIP)	forward	CTAGGTCCGCTGCGATTTG
	reverse	TGAGGTCCTGTAGACACATGG
lnc-CES1-1 (RIP)	forward	GACCTTCCCTTCCGACTCCAT
	reverse	CGGCAGGTTAGAGCCTTCA
lnc-CES1-1 (RIP)	forward	CATGGCTTCCTTGTATGATGGT

	reverse	CTCCAAAGTGGGCGATATTCTG
PPARα	forward	ATGGTGGACACGGAAAGCC
	reverse	CGATGGATTGCGAAATCTCTTGG
PPARβ	forward	CAGGCGATGGTGCAACTCATA
	reverse	CAGAGCACGTCTTGAGCCA
PPARγ	forward	GATGCCAGCGACTTTGACTC
	reverse	ACCCACGTCATCTTCAGGGA

Table S2. Antibodies for western blot, ChIP, RIP and immunofluorescence.

Antibodies	RRID	Source
GAPDH (WB1:1000)	AB_2715590	Beyotime Biotechnology, Shanghai, China
IgG (ChIP/RIP)	AB_97842	Millipore, Bedford, USA
H3K4me1 (ChIP)	AB_310614	Millipore, Bedford, USA
H3K27ac (ChIP)	AB_2118291	Abcam, Cambridge, UK
CBP (ChIP)	AB_2616020	Cell Signaling Technology, Beverly, USA
c-Jun (ChIP)	AB_2798752	Cell Signaling Technology, Beverly, USA
STAT4 (ChIP)	AB_2255156	Cell Signaling Technology, Beverly, USA
RNA Pol II (RIP)	AB_1977470	Millipore, Bedford, USA
FUS/TLS (ChIP/RIP)	AB_11178670	Cell Signaling Technology, Beverly, USA
ELF4b (RIP)	AB_1640424	Abcam, Cambridge, UK
SF2/ASF(RIP)	AB_2798641	Cell Signaling Technology, Beverly, USA
PPARγ(WB1:1000/IF1:100)	AB_2800240	Cell Signaling Technology, Beverly, USA
SMAD3(WB1:1000/IF1:100)	AB_2193182	Cell Signaling Technology, Beverly, USA

Fig. S1. (a) Principal component analysis. **(b)** Visualized box plot for compare the distributions of expression values for the samples after normalization. **(c)** Express (FPKM scores) distribution. **(d)** Correlation of each RNA-seq sample with the mean of all samples.

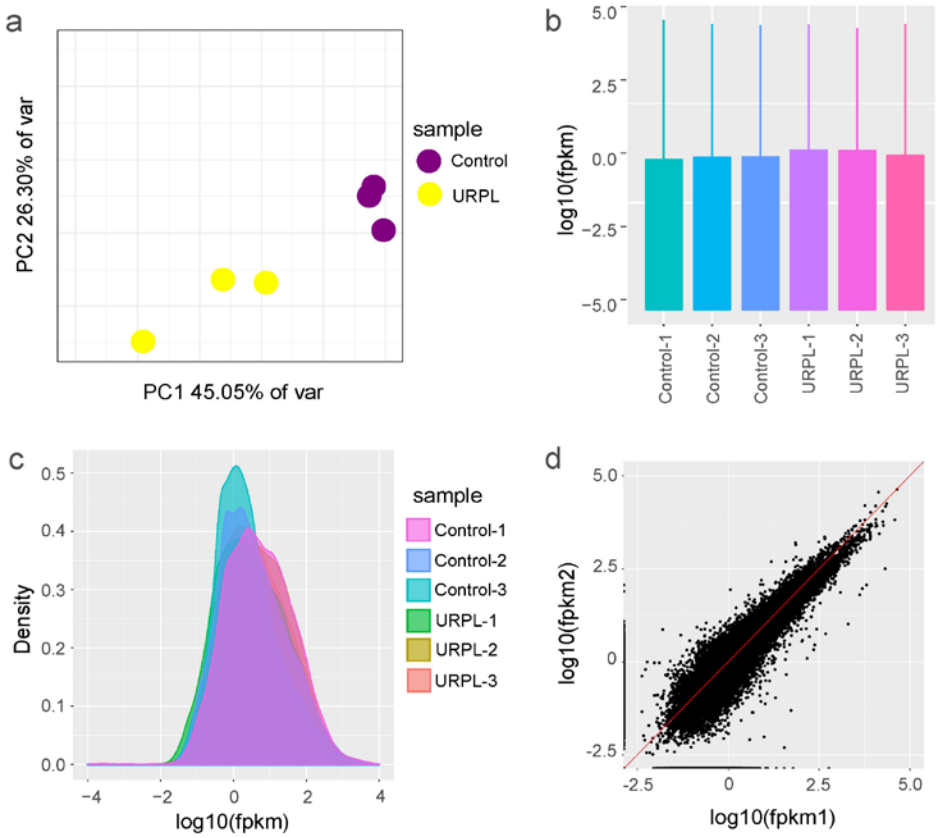

Fig. S2. *Relative expression of the overexpressed lncRNA after transfection.*

Transfection efficiency of **(a)** lnc-ADAMTS1-2, **(b)** lnc-CES1-1 and **(c)** lnc-PARK7-1 in HTR-8/SVneo, **(d)** lnc-ADAMTS1-2, **(e)** lnc-CES1-1 and **(f)** lnc-PARK7-1 in JEG-3. **P* < 0.05. Data are presented as mean ±SEM. Three repeats were set up for each treatment.

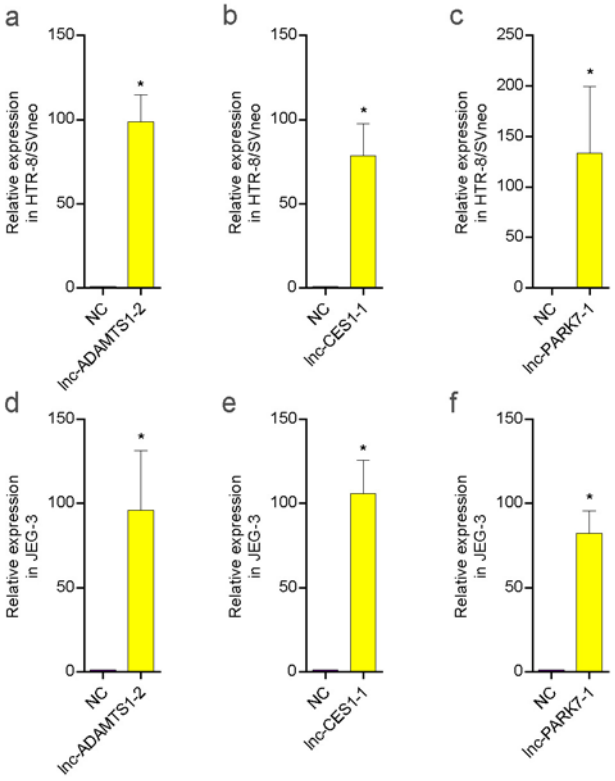

Figure S3. Cell proliferation analysis of HTR-8/SVneo of JEG-3 cells at 24h and 48h. *$P < 0.05$. Data are presented as mean ±SEM. Three repeats were set up for each treatment.

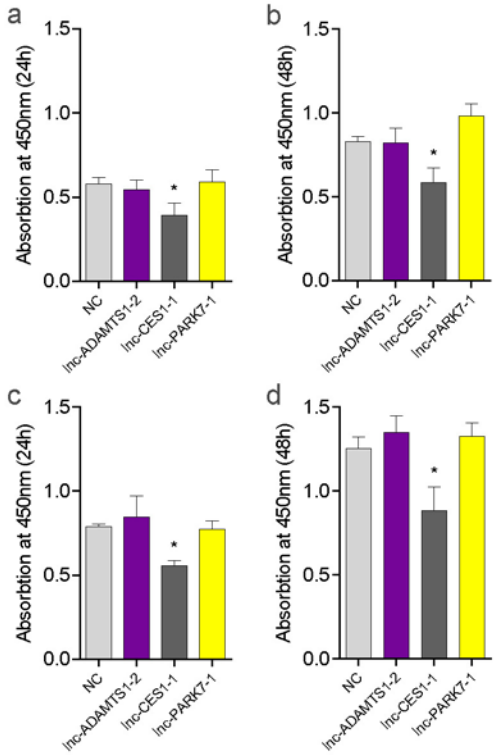

Figure S4. Cell apoptosis assay of HTR-8/SVneo and cells overexpressed lnc-ADAMTS1-2 / lnc-CES1-1 / lnc-PARK7-1. *P < 0.05. Data are presented as mean ±SEM. Three repeats were set up for each treatment.

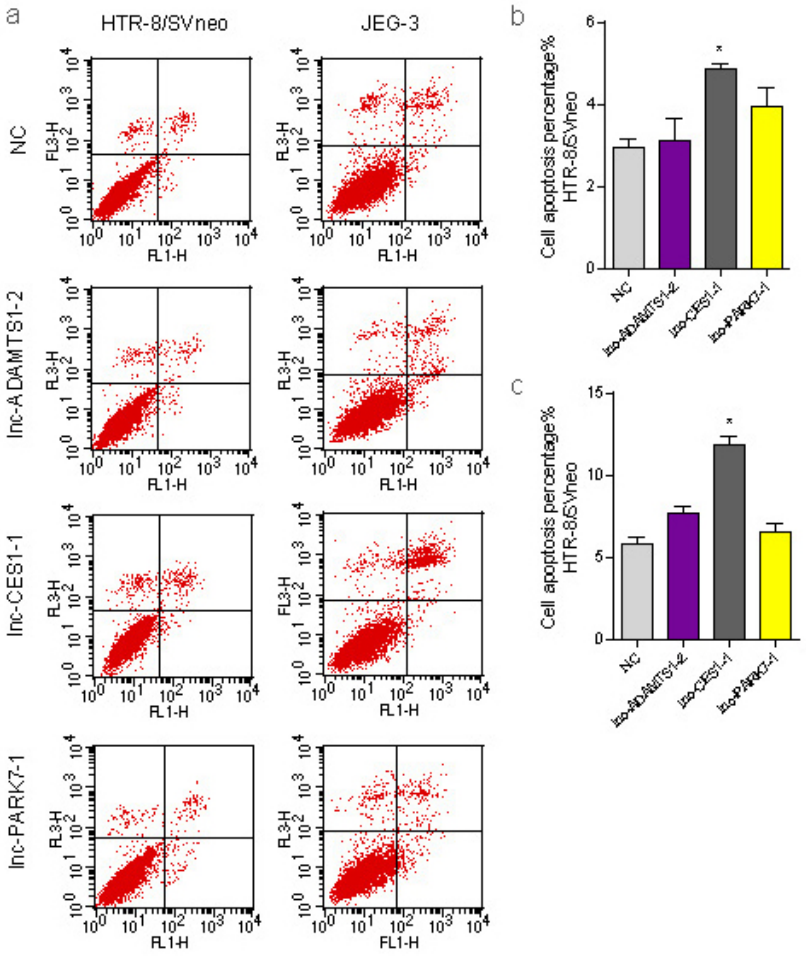

Figure S5. Cell cycle assay of HTR-8/SVneo and cells overexpressed lnc-ADAMTS1-2 / lnc-CES1-1 / lnc-PARK7-1. *P < 0.05. Data are presented as mean ±SEM. Three repeats were set up for each treatment.

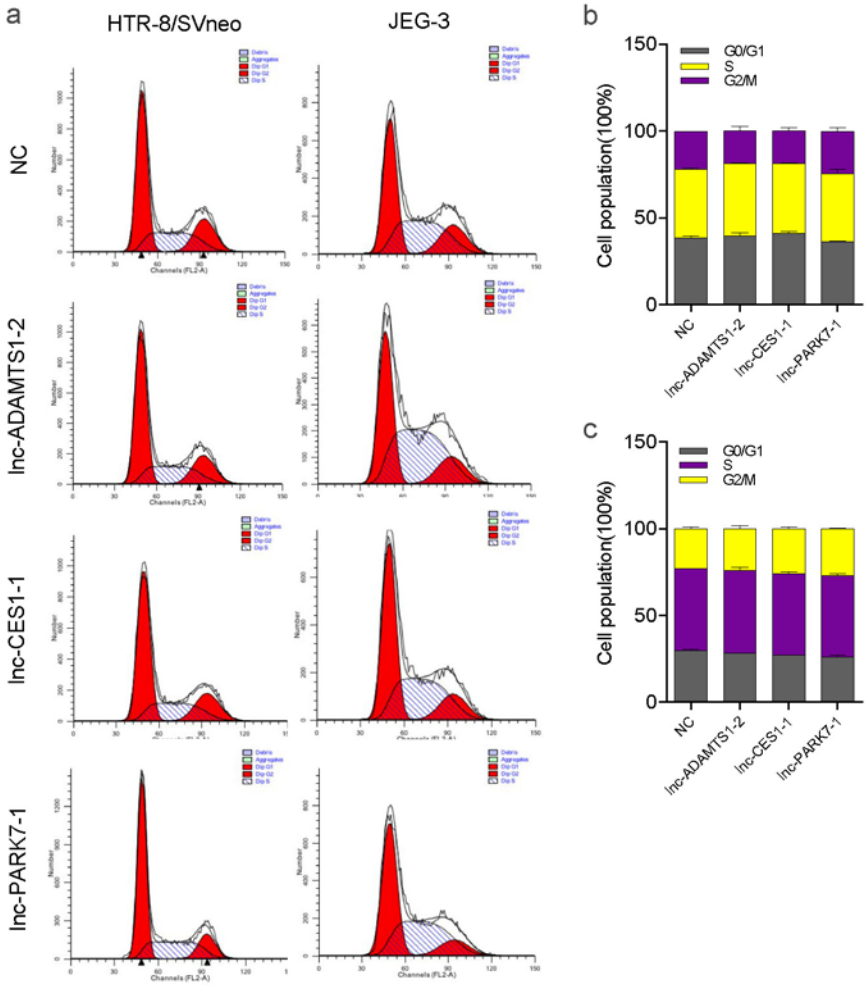

Fig. S6. *Relative expression of knockdown lnc-CES1-1 and PPARγ after transfection.* Transfection efficiency of **(a)** lnc-CES1-1, **(c)** PPARγ in HTR-8/SVneo, **(b)** lnc-CES1-1 and **(d)** PPARγ in JEG-3. **P* < 0.05. Data are presented as mean ±SEM. Three repeats were set up for each treatment.

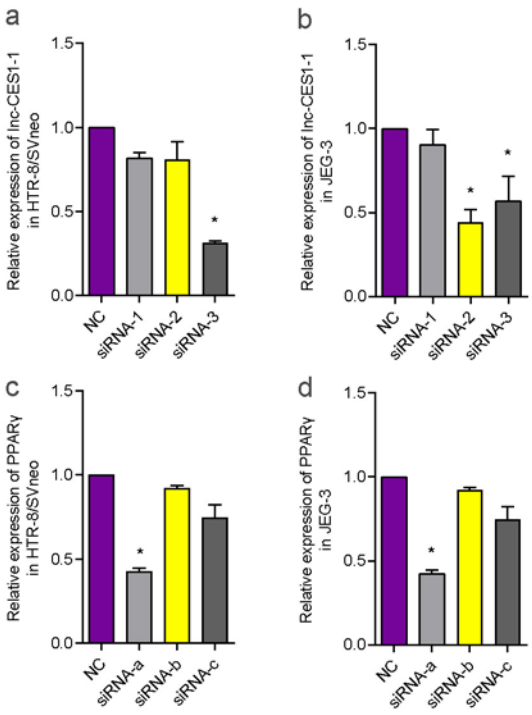

Figure S7. (**a**) RNA immunoprecipitation (RIP) followed by western blot with anti FUS to identify RNA binding protein. **(b, c)** Western blot of Smad3 in HTR-8/SVneo and JEG-3 cells of overexpressed lnc-CES1-1. **(d, e)** Western blot of FUS in HTR-8/SVneo and JEG-3 cells of overexpressed and knockdown PPARγ.