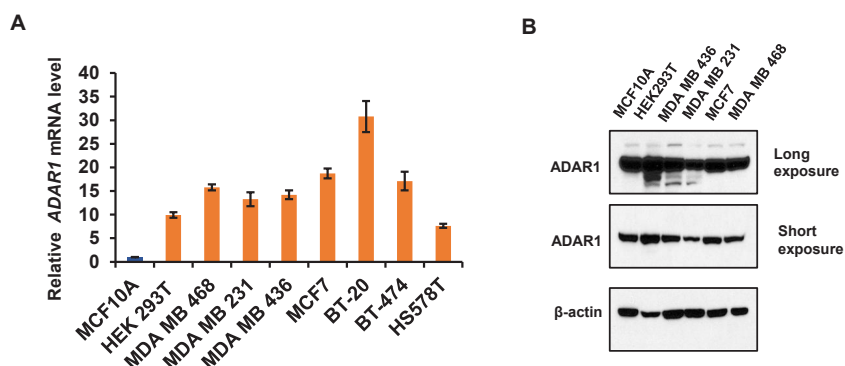


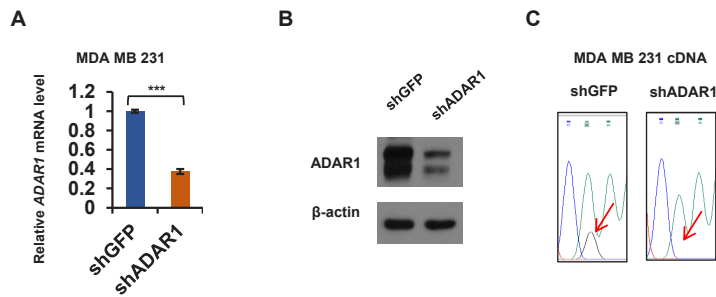
Supplementary Figure S1. Expression profile of ADAR1 in human breast cancer cell lines



(A) RNA level of ADAR1 in untransformed (MCF10A, HEK293) or breast cancer cells, measured by Real time PCR

(B) Western blot analysis of ADAR1 in breast cancer cells, indicating overall high expression. Actin was used as a control

Supplementary Fig S2. ADAR1 depletion abrogates A to G editing of ARPIN gene in MDA-MB-231 cells



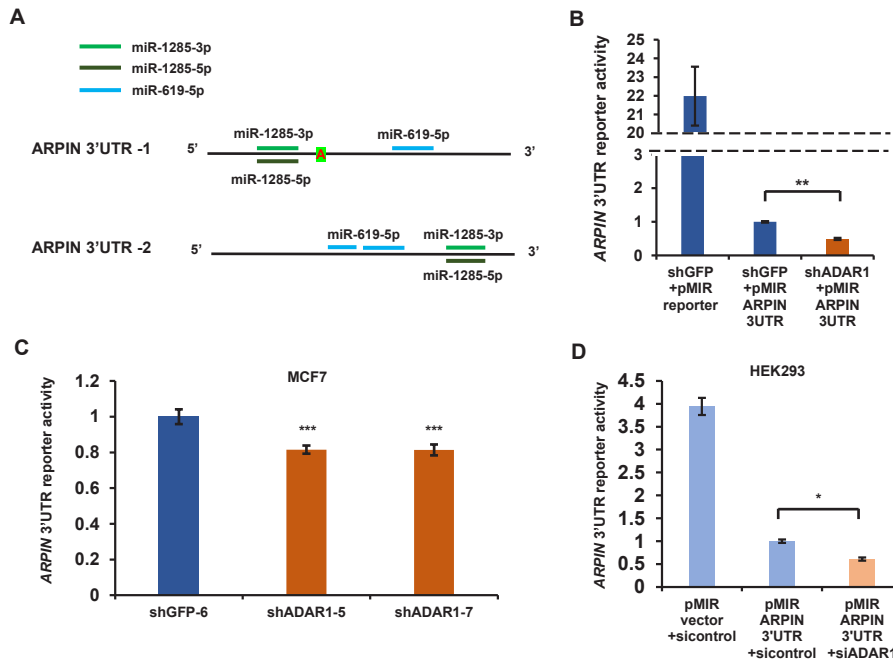
(A) RNA level of ADAR1 in MDA-MB-231 breast cancer cells with shRNA targeting ADAR1, measured by Real time PCR

(B) Western blot analysis of ADAR1 in control (shGFP) or ADAR1 depleted MDA-MB-231 cells (shADAR1).

Actin was used as a control

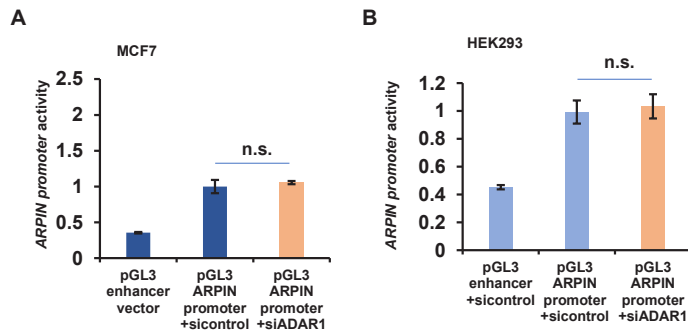
(C) Sanger Sequencing results showing A to G editing of ARPIN 3'UTR in control cells, which is diminished in shADAR1 cells

Supplementary Fig S3. ARPIN 3'UTR is suppressed by ADAR1 depletion



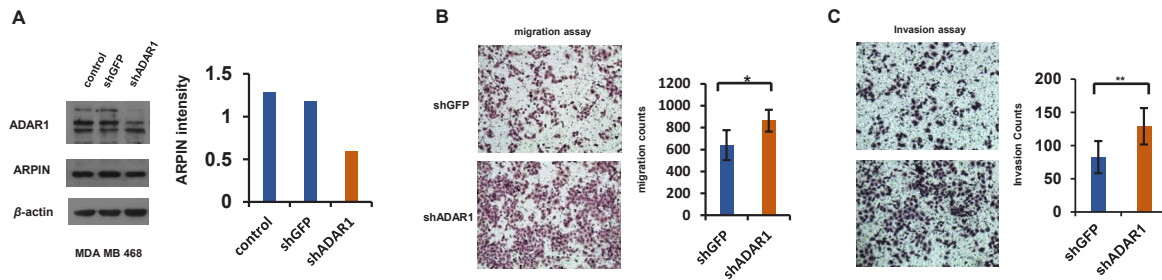
- (A) Diagram of ARPIN 3'UTR and putative ADAR1-dependent miRNAs binding to the UTR. Editing site is marked as A.
- (B) ARPIN 3'UTR reporter(pMIR-ARPIN) analysis in control (shGFP, in blue) or ADAR1 depleted (shADAR1, in brown) cells. Empty reporter (pMIR reporter) was tested together.
- (C) UTR reporter analysis in control (shGFP, in blue) or two independent ADAR1 depleted clonal (shADAR1-5 and 1-7, in brown) cells
- (D) ARPIN 3'UTR reporter(pMIR-ARPIN) analysis in control (in blue) or treated with ADAR1 siRNA (shADAR1, in brown) cells. Empty reporter (pMIR vector) was tested together.

Supplementary Fig S4. ARPIN promoter activity is unchanged by ADAR1 depletion



- (A) ARPIN promoter assay in MCF7 cells with control siRNA (sicontrol) or targeting ADAR1 (siADAR1). n.s.; Not Significant
(B) ARPIN promoter assay in HEK293 cells with control siRNA (sicontrol) or targeting ADAR1 (siADAR1). n.s.; Not Significant

Supplementary Fig S5. ADAR1 depletion downregulates ARPIN and promotes mobility of MDA-MB-468 Cells



(A) Western blot analysis of ADAR1 and ARPIN in control (shGFP) or ADAR1 depleted MDA-MB-468 cells (shADAR1).

Actin was used as a control. A graph on right shows ARPIN level measured by densitometry of the Western blot.

(B and C) Representative images of migration (B, left) or invasion (C, left) assay for the control (shGFP) or ADAR1-depleted (shADAR1) cells. Graphs on right shows cell counts from triplicated transwells.

Supplementary Table S1. Real time PCR primer sequence and siRNA sequences

Primer	5'-3'
hADAR1_RT_F	GCTTGGGAACAGGGAATCG
hADAR1_RT_R	CTGTAGAGAAACCTGATGAAGC
hRPL13a_RT_F	CGAAGATGGCGGAGGTGCAG
hRPL13a_RT_R	GGTTTTGTGGGGCAGCATAC
hGAPDH_RT_F	CCCATGTTCTCATGGGTGT
hGAPDH_RT_R	TGGTCATGAGTCCTTCCACGATAT
hARPIN_RT_F2	TGTATCTCGGCACAGCATCTTG
hARPIN_RT_R	CAGCTCGAGTTCATCACCT
hSnail1_RT_F	GCTGCAGGACTCTAATCCGAGAGTT
hSnail1_RT_R	GACAGAGTCCAGATGAGCATTG
hSlug_RT_F	CTGGGCTGGCCAACATAAG
hSlug_RT_R	CCTTGTCACAGTATTTACAGCTGAAAG
hE-cad_RT_F	GGGTGTCGAGGGAAAAATAGG
hE-cad_RT_R	CGAGAGCTACACGTTACGG
hTwsit_RT_F	GGAGTCCGCAGTCTTACGAG
hTwsit_RT_R	TCTGGAGGACCTGGTAGAGG
hN-cad_RT_F	GGTGGAGGAGAAGAAGACCAG
hN-cad_RT_R	GGCATCAGGTCCACAGT
siRNA	5'-3'
siADAR1	GCGACUAUCUCUCAAUGUUU
siARPIN	GAACAGUGACCAAGUGUAAUU

Supplementary Table S2. List of genes whose expression is positively correlated with ADAR1

Correlated Gene	Cytoband	Spearman's Correlation	p-Value	q-Value
CIB1	15q26.1	0.33227861	2.62E-50	4.79E-46
PEX11A	15q26.1	0.29614456	7.56E-40	6.91E-36
TOM1L2	17p11.2	0.2695209	4.80E-33	2.19E-29
TMED3	15q25.1	0.26907743	6.14E-33	2.24E-29
IDH2	15q26.1	0.26460096	7.21E-32	1.88E-28
ACOT4	14q24.3	0.2640604	9.68E-32	2.21E-28
FYCO1	3p21.31	0.26300348	1.72E-31	3.22E-28
RRAS	19q13.33	0.26295635	1.76E-31	3.22E-28
CYB561D2	3p21.31	0.26213405	2.75E-31	4.56E-28
GMPPB	3p21.31	0.25718846	3.84E-30	5.40E-27
MSRB1	16p13.3	0.25244728	4.56E-29	5.56E-26
CRAT	9q34.11	0.25187637	6.13E-29	6.94E-26
ANKRD33	12q13.13	0.25160778	7.04E-29	7.14E-26

Supplementary Table S3 List of genes whose expression is negatively correlated with ADAR1

Correlated Gene	Cytoband	Spearman's Correlation	p-Value	q-Value
NAP1L1	12q21.2	-0.270352491	3.02E-33	1.84E-29
H3F3B	17q25.1	-0.265531637	4.34E-32	1.32E-28
HNRNPH3	10q21.3	-0.260313857	7.30E-31	1.11E-27
TERF2IP	16q23.1	-0.25509703	1.15E-29	1.50E-26
C18ORF54	18q21.2	-0.251775127	6.46E-29	6.94E-26