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Supplemental Information

ADAR1 Facilitates KSHV Lytic Reactivation by Modulating the RLR-Dependent Signaling Pathway

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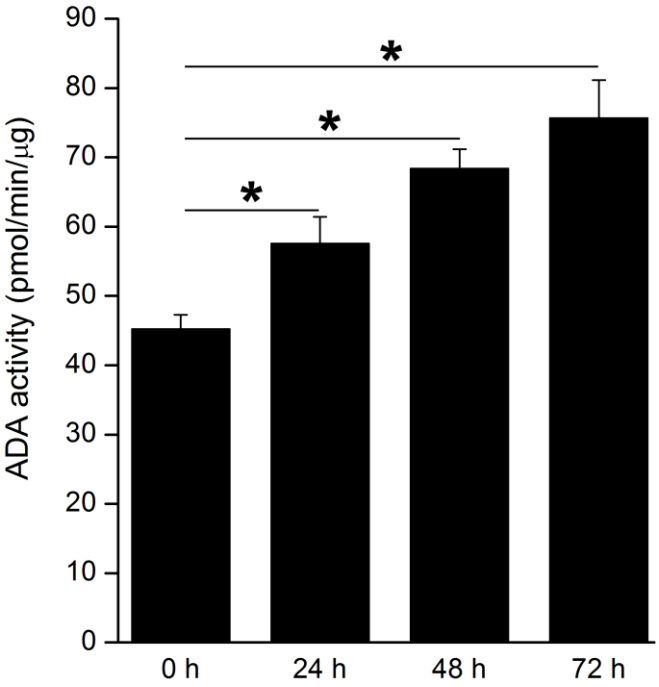

Figure S1. Cellular Adenosine Deaminase (ADA) Activity Increases during KSHV Lytic Reactivation, Related to Figure 1.

iSLK.219 cells were treated with Dox (0.2 μg/ml) for 0, 48 and 72 hours and the cellular adenosine deaminase (ADA) activity was measured by the Adenosine Deaminase (ADA) Activity Assay Kit (Abcam, ab204695) according to the manufacturer's instruction.

The data shown are representative of two independent experiments. Data are presented as mean ± SD.

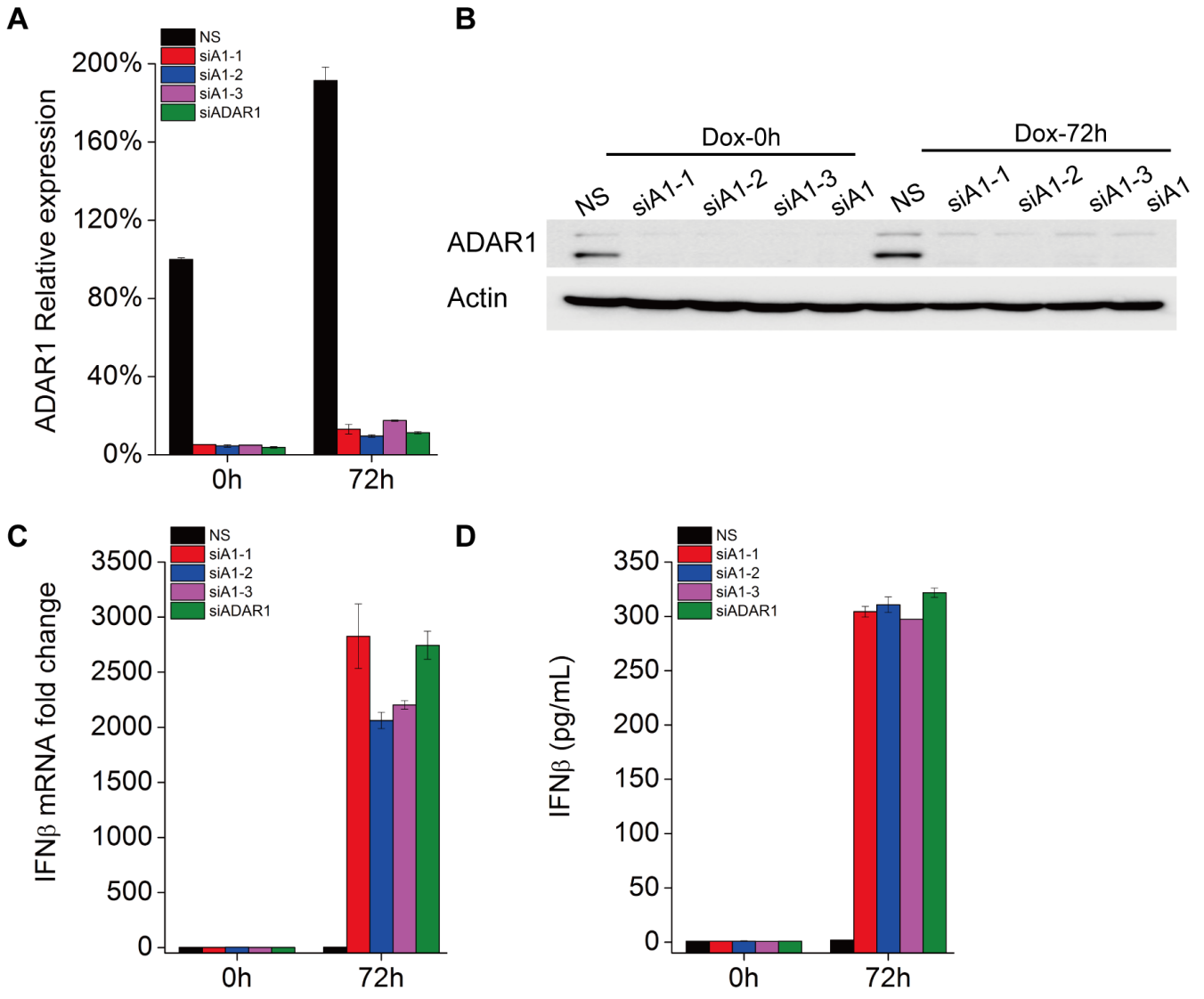

Figure S2. Knockdown of ADAR1 Induces IFNβ Production during KSHV Reactivation, Related to Figure 2.

iSLK.219 cells were transfected with NS, ADAR1(siRNA pool) or three individual siRNAs of ADAR1 for 48 hours and then treated with 0.2 μg/ml Dox for 0, 48 and 72 hours.

(A and B) ADAR1 knockdown efficiency was confirmed by real-time PCR (A) and immunoblot (B).

(C and D) Expression level of IFNβ mRNA and protein was measured by real-time PCR (C) and ELISA (D).

The data shown are representative of two independent experiments. Data from (A), (C) and (D) are presented as mean ± SD.

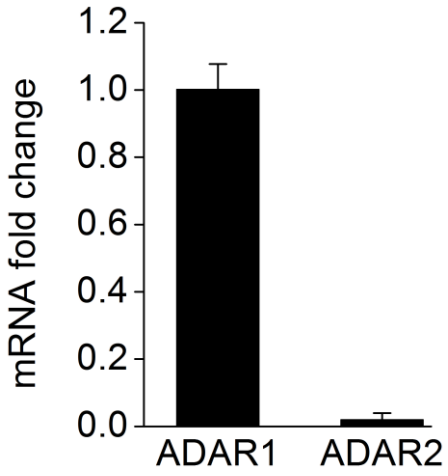

Figure S3. mRNA Expression Level of ADAR1 Is Higher Than That of ADAR2 in iSLK.219 Cells, Related to Figure 3.

mRNA expression of ADAR1 and ADAR2 genes in iSLK.219 cells were measured by real-time PCR. Fold change was normalized to Actin mRNA.

The data are representative of three independent experiments. Data are presented as mean ± SD.

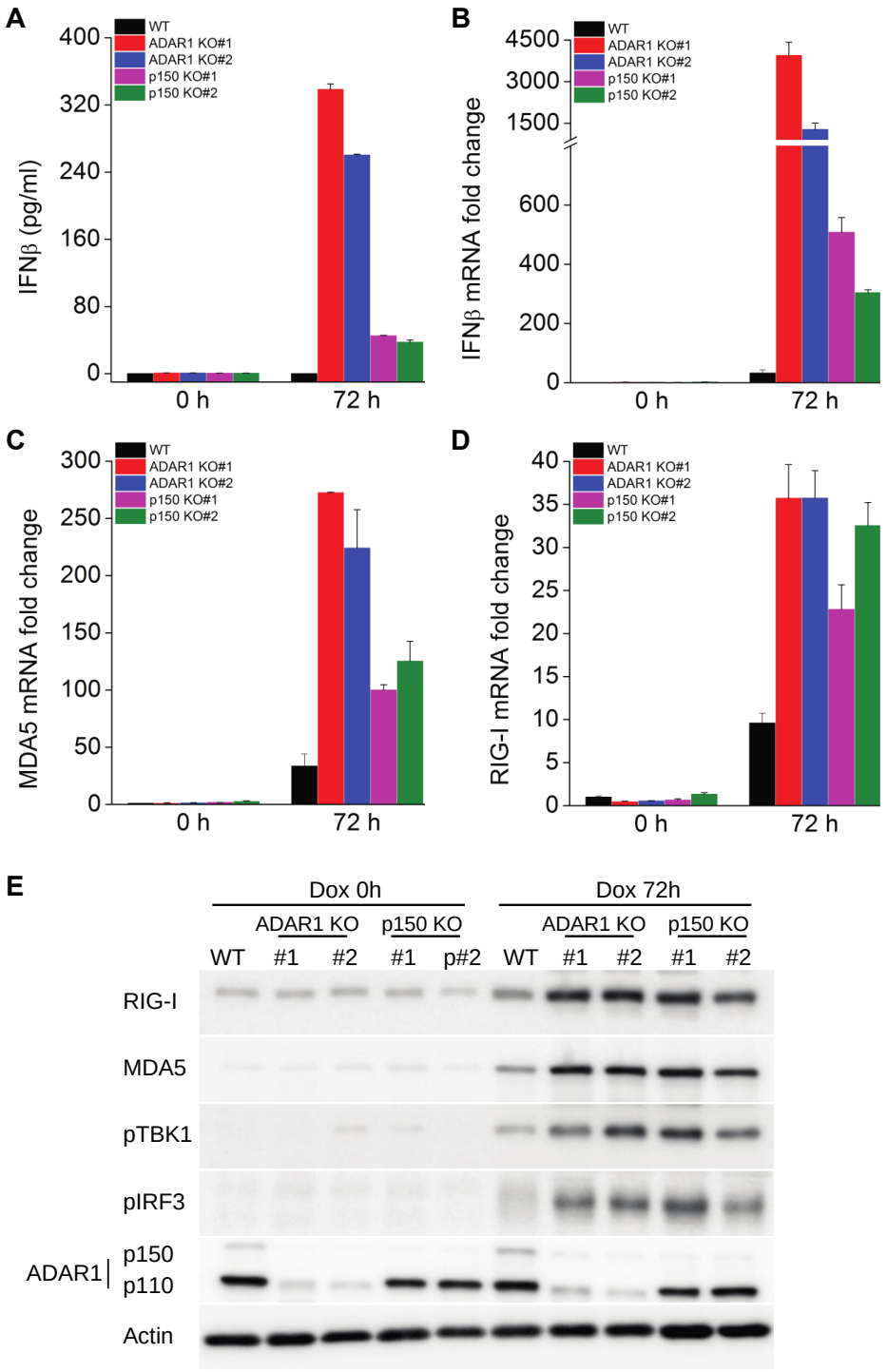

Figure S4. Both ADAR1 p110 and p150 Isoforms Are Responsible for Preventing Innate Immune Activation during KSHV Lytic Reactivation, Related to Figure 3.

ADAR1 KO and p150 KO iSLK.219 cells were generated by CRISPR/Cas9 gene-editing technology. Indicated cells were treated with 0.2 μg/ml Dox for 0 and 72 hours. WT, CRISPR/Cas9-derived control cells. #1 and #2 represent two independent cell clones.

(A) IFNβ production in supernatant was measured by ELISA.

(B-D) mRNA expression of IFNβ, MDA5 and RIG-I genes were measured by real-time PCR.

(E) Cell lysates were immunoblotted with indicated antibodies.

Data from (A-E) are representative of two independent experiments. Data from (A-D) are presented as mean ± SD.

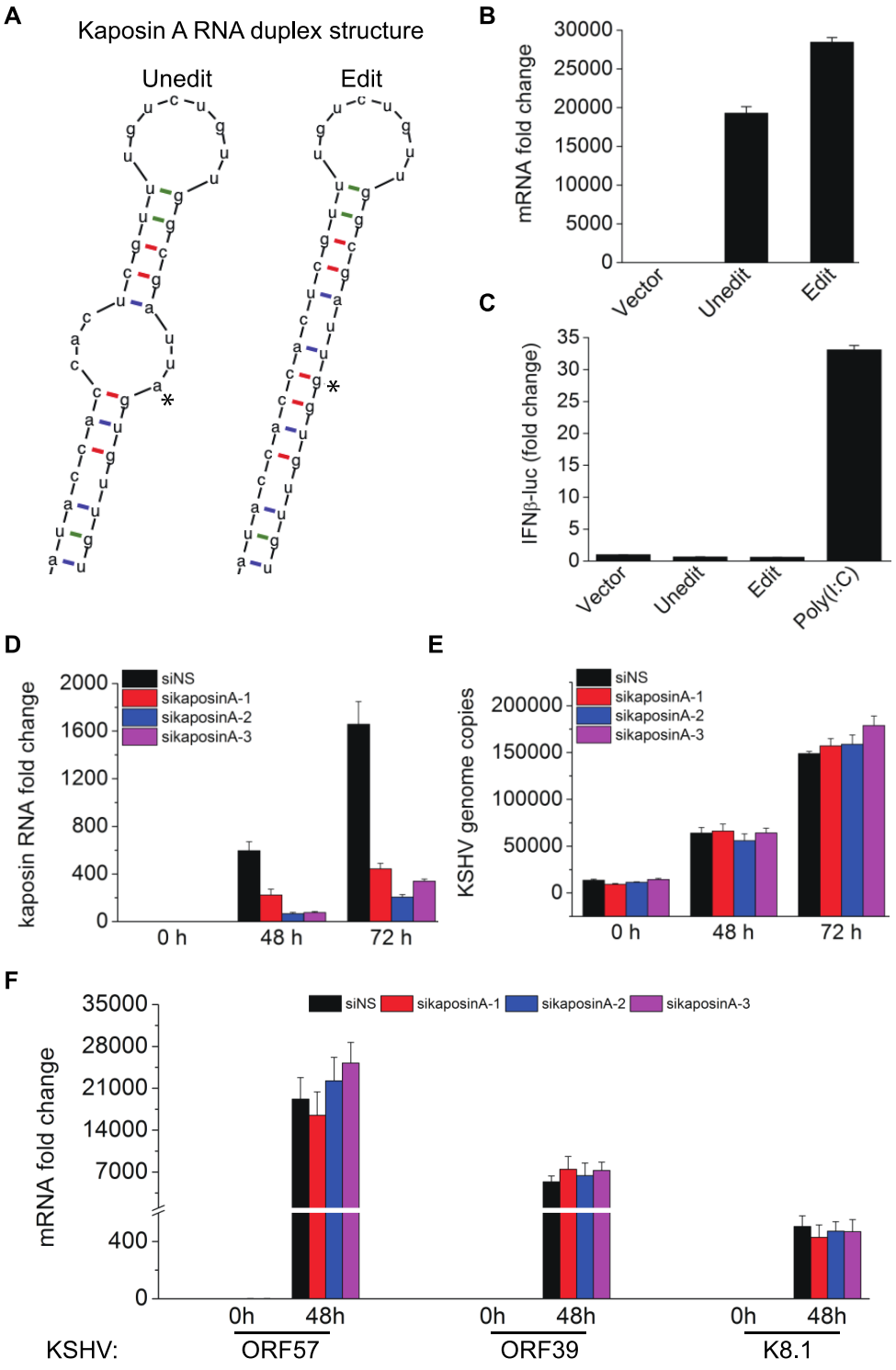

Figure S5. Kaposin RNA Does Not Affect IFNβ Production or KSHV Lytic Reactivation, Related to Figure 3.

(A) Secondary structure predictions of unedited and A-to-I(G) edited Kaposin A transcripts by the RNA Mfold online program (http://unafold.rna.albany.edu/?q=mfold/RNA-Folding-Form).

(B-C) 293T cells were co-transfected with the indicated plasmids along with an IFNβ promoter luciferase reporter plasmid. 24 hours post transfection, Kaposin RNA expression was detected by real-time PCR (B), and luciferase assay was performed using using Dual-Luciferase Reporter Assay System and quantified by a luminometer (C).

(D) iSLK.219 cells were transfected with NS and three individual Kaposin siRNAs for 48 hours and then treated with Dox for 0, 48 and 72 hours. Kapsoin knockdown efficiency was confirmed by realtime PCR.

(E) KSHV genome copy numbers in the supernatants from cells in (D) were measured by realtime PCR.

(F) mRNA expression of KSHV ORF57, ORF39 and K8.1 genes in cells from (D) were measured by real-time PCR.

Data from (B-F) are representative of three independents experiments. Data are presented as mean ± SD.

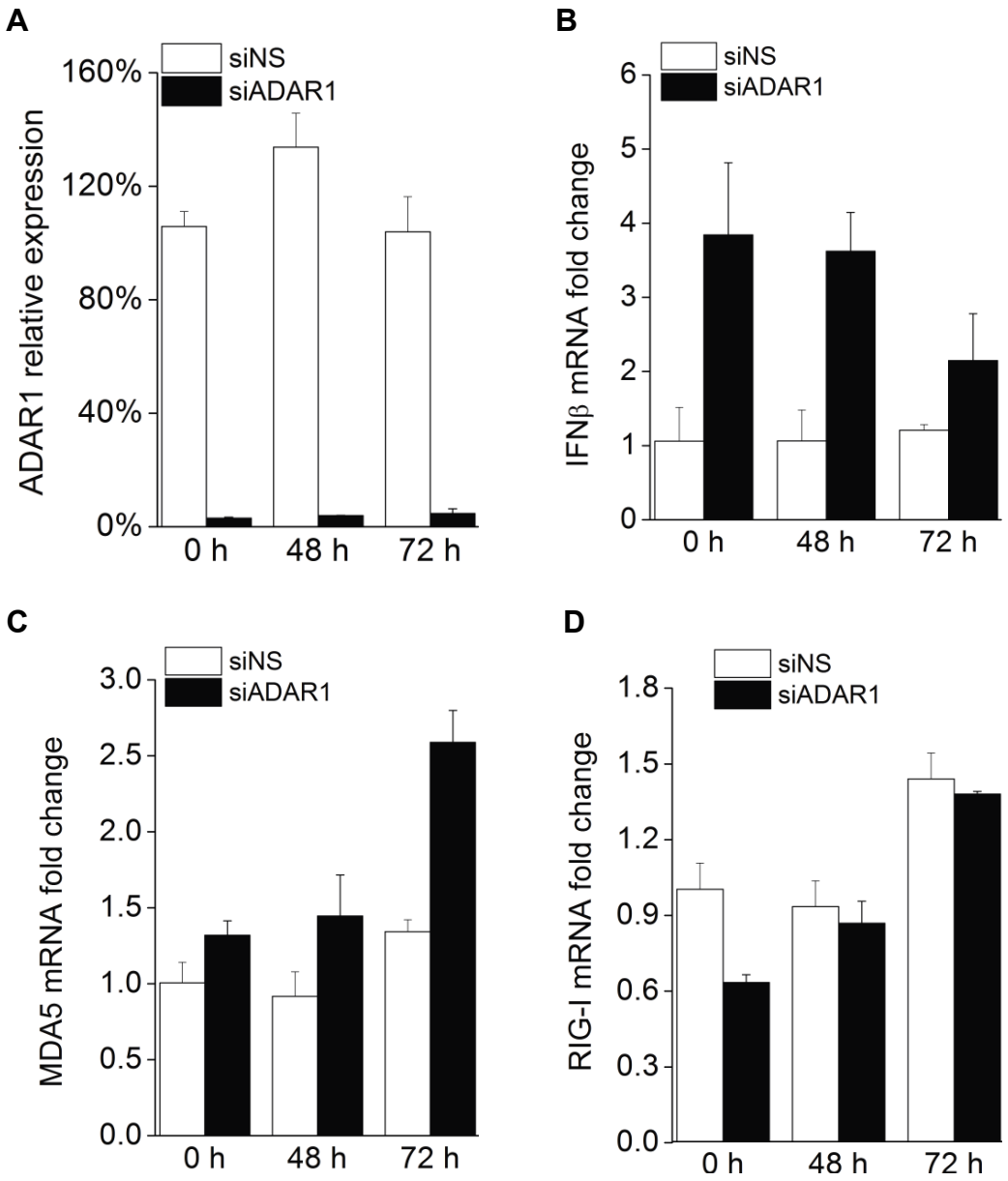

Figure S6. Dox Treatment Alone Does Not Affect IFNβ Induction, Related to Figure 4.
(A-D) iSLK.RTA cells were transfected with NS or ADAR1 siRNAs for 48 hours and then treated with 0.2 μg/ml Dox for 0, 48 and 72 hours. mRNA expression levels of indicated genes were quantified with real-time PCR and normalized to β-actin.
The data shown are representative of two independent experiments. Data are presented as mean ± SD.

Table S1. Human Interferons & Receptors PCR Array in iSLK.219 Cells, Related to Figure 2

		2^(-Ava.(Delta(Ct))			
	Gene name	siNS Dox 0h	siADAR1 Dox 0h	siNS Dox 72h	siADAR1 Dox 72h
1	ADAR adenosine deaminase RNA specific	1.43E-02	8.69E-04	2.61E-02	3.62E-03
2	CNTFR ciliary nerotrophic factor receptor	4.83E-07	2.76E-07	1.89E-05	1.42E-05
3	CRLF2 cytokine receptor like factor 2	2.68E-06	1.22E-05	3.08E-06	6.84E-06
4	CSF2RA colony stimulating factor 2 receptor alpha subunit	4.03E-04	5.01E-04	1.27E-04	2.99E-04
5	CSF3R colony stimulating factor 3 receptor	1.91E-03	5.93E-03	4.56E-05	1.44E-05
6	CXCL10 C-X-C motif chemokine ligand 10	4.57E-03	6.48E-03	1.75E-05	8.26E-04
7	EBI3 Epstein-Barr virus induced 3	1.21E-04	7.07E-04	3.09E-04	9.20E-04
8	F3 coagulation factor III, tissue factor	3.03E-03	3.10E-03	7.03E-03	2.05E-02
9	IFI16 interferon gamma inducible protein 16	2.51E-03	3.22E-03	3.65E-03	3.52E-02
10	IFI27 interferon alpha inducible protein 27	1.03E-05	9.31E-06	1.41E-03	4.30E-02
11	IFI30 IFI30 lysosomal thiol reductase	1.06E-06	1.29E-06	3.27E-03	2.33E-02
12	IFI35 interferon induced protein 35	1.86E-04	2.42E-04	3.12E-03	3.74E-02
13	IFI44 interferon induced protein 44	9.07E-04	2.03E-03	3.53E-03	2.32E-02
14	IFI44L interferon induced protein 44 like	4.05E-03	9.53E-03	1.12E-03	9.51E-03
15	IFI6 interferon alpha induced protein 6	1.31E-03	2.44E-03	8.53E-04	1.76E-02
16	IFIH1 interferon induced with helicase C domain	4.52E-03	9.55E-03	4.67E-03	7.01E-02
17	IFIT1 interferon induced protein with tetratricopeptide repeats 1	2.11E-03	6.97E-03	1.16E-02	2.68E-01
18	IFIT2 interferon induced protein with tetratricopeptide repeats 2	5.72E-03	7.41E-03	7.68E-03	2.60E-01
19	IFIT3 interferon induced protein with tetratricopeptide repeats 3	1.21E-06	9.24E-07	2.49E-02	3.78E-01
20	IFITM1 interferon induced transmembrane protein 1	1.36E-07	6.43E-07	3.49E-03	2.46E-01
21	IFITM2 interferon induced transmembrane protein 2	1.88E-06	2.55E-06	3.01E-03	1.94E-02
22	IFNA1 interferon alpha 1	2.27E-04	4.68E-04	1.20E-05	1.59E-05
23	IFNA14 interferon alpha 14	1.46E-04	5.20E-04	3.47E-06	1.79E-06
24	IFNA16 interferon alpha 16	9.70E-04	2.40E-03	1.50E-05	1.36E-05
25	IFNA2 interferon alpha 2	9.45E-07	1.21E-06	6.36E-05	9.51E-05
26	IFNA21 interferon alpha 21	4.19E-05	4.22E-05	9.98E-06	2.37E-05
27	IFNA4 interferon alpha 4	2.49E-06	2.89E-06	1.33E-04	1.30E-04
28	IFNA5 interferon alpha 5	3.06E-06	4.52E-06	2.58E-05	3.15E-05
29	IFNA6 interferon alpha 6	3.63E-03	3.44E-03	8.64E-05	1.29E-04
30	IFNA7 interferon alpha 7	5.13E-03	4.96E-03	1.67E-05	5.23E-05
31	IFNA8 interferon alpha 8	1.05E-05	1.04E-04	5.28E-05	6.92E-05
32	IFNAR1 interferon alpha and beta receptor subunit 1	1.86E-05	2.13E-05	3.24E-03	3.29E-03
33	IFNAR2 interferon alpha and beta receptor subunit 2	1.20E-05	1.22E-05	5.46E-03	7.65E-03
34	IFNBI interferon beta 1	1.33E-06	1.58E-06	4.51E-05	3.22E-02
35	IFNE interferon epsilon	1.27E-05	6.15E-06	8.82E-06	1.02E-05
36	IFNG interferon gamma	1.68E-05	1.87E-05	3.83E-05	2.74E-05
37	IFNGR1 interferon gamma receptor 1	2.20E-03	2.08E-03	3.22E-03	2.87E-03
38	IFNGR2 interferon gamma receptor 2	3.83E-03	4.41E-03	3.33E-03	5.09E-03
39	IFNK interferon kappa	3.74E-03	3.75E-03	1.04E-04	7.60E-05

40	IFNW1 interferon omega 1	2.34E-05	2.04E-05	2.21E-06	4.27E-05
41	IFRD1 interferon related developmental regulator 1	7.01E-03	6.95E-03	1.44E-02	1.19E-02
42	ILRD2 interferon related developmental regulator 2	1.43E-04	1.39E-04	4.13E-03	3.52E-03
43	IL10RA interleukin 10 receptor subunit alpha	6.19E-06	5.93E-06	3.84E-05	3.52E-05
44	IL10RB interleukin 10 receptor subunit beta	9.89E-03	9.27E-03	5.39E-03	6.81E-03
45	IL11RA interleukin 11 receptor subunit alpha	1.94E-03	2.57E-03	2.42E-04	2.80E-04
46	IL12B interleukin 12B	3.26E-03	3.48E-03	1.28E-05	1.30E-05
47	IL13RA1 interleukin 13 receptor subunit alpha 1	7.84E-05	6.71E-05	6.53E-03	6.38E-03
48	IL15 interleukin 15	1.70E-08	2.44E-07	2.30E-03	4.94E-03
49	IL20RA interleukin 20 receptor subunit alpha	4.48E-05	4.28E-05	7.94E-05	7.28E-05
50	IL20RB interleukin 20 receptor subunit beta	3.75E-06	1.81E-05	3.59E-03	5.31E-03
51	IL21R interleukin 21 receptor	2.59E-04	2.83E-04	5.01E-06	3.83E-06
52	IL22RA2 interleukin 22 receptor subunit alpha	2.16E-06	1.83E-05	8.96E-06	8.28E-06
53	IL28A interferon lambda 2	1.90E-06	1.93E-06	8.70E-06	3.34E-03
54	IL28RA interferon lambda receptor 1	6.96E-07	5.00E-07	4.23E-04	4.77E-04
55	IL29 interferon lambda 1	5.02E-04	5.16E-04	2.00E-05	1.66E-02
56	IL2RB interleukin 2 receptor subunit beta	8.76E-07	6.39E-07	8.70E-06	6.18E-06
57	IL2RG interleukin 2 receptor subunit gamma	1.04E-03	9.87E-04	1.05E-05	1.60E-05
58	IL31RA interleukin 31 receptor A	3.16E-03	3.54E-03	2.21E-04	4.84E-04
59	IL3RA interleukin 3 receptor subunit alpha	1.85E-06	2.33E-06	3.94E-06	3.36E-06
60	IL4R interleukin 4 receptor	1.47E-06	6.68E-07	1.31E-03	2.48E-03
61	IL5RA interleukin 5 receptor subunit alpha	1.73E-08	7.92E-09	2.79E-07	1.37E-07
62	IL6 interleukin 6	1.62E-06	1.49E-06	7.41E-02	1.24E-01
63	IL6R interleukin 6 receptor	9.65E-04	1.28E-03	1.12E-03	4.84E-04
64	IL7R interleukin 7 receptor	1.75E-03	1.78E-03	2.78E-03	5.86E-03
65	IL9R interleukin 9 receptor	6.66E-05	6.38E-05	3.00E-06	4.88E-06
66	IRF1 interferon regulatory factor 1	8.18E-03	7.27E-03	2.71E-03	1.13E-02
67	IRF2 interferon regulatory factor 2	1.27E-05	1.19E-05	1.94E-03	7.43E-03
68	IRF2BP1 interferon regulatory factor 2 binding protein 1	4.30E-05	3.01E-05	4.76E-05	3.62E-05
69	IRF3 interferon regulatory factor 3	6.77E-05	7.71E-05	3.35E-03	6.27E-03
70	IRF4 interferon regulatory factor 4	2.25E-03	3.40E-03	1.12E-04	2.86E-05
71	IRF5 interferon regulatory factor 5	2.97E-04	2.64E-04	1.14E-04	2.05E-04
72	IRF6 interferon regulatory factor 6	4.56E-04	7.68E-04	1.80E-03	5.60E-04
73	IRF7 interferon regulatory factor 7	3.37E-05	1.07E-04	3.34E-04	4.66E-03
74	IRF8 interferon regulatory factor 8	4.73E-04	4.61E-04	7.15E-06	2.16E-06
75	IRGM immunity related GTPase M	2.47E-05	2.51E-05	4.83E-05	5.80E-05
76	ISG15 ISG15 ubiquitin like modifier	2.16E-04	2.73E-04	4.11E-03	6.09E-02
77	LEPR leptin receptor	1.42E-04	1.15E-03	5.63E-04	6.49E-04
78	MPL MPL proto-oncogene, thrombopoietin receptor	2.51E-02	2.62E-02	1.65E-05	1.50E-05
79	MX1 MX dynamic like GTPase 1	3.23E-08	6.96E-08	2.68E-04	8.15E-04
80	OAS1 2'-5'-oligoadenylate synthetase 1	2.99E-03	4.54E-03	2.00E-03	9.42E-02
81	PSME1 proteasome activator subunit 1	9.24E-07	1.43E-06	1.89E-02	4.75E-02
82	PYHIN1 pyrin and HIN domain family member 1	1.44E-07	3.32E-07	3.13E-06	4.12E-07
83	SP110 SP110 nuclear body protein	3.69E-05	3.55E-05	5.53E-03	4.00E-02
84	TTN titin	2.64E-03	5.96E-03	1.34E-05	4.53E-06

Table S2. Human Interferons & Receptors PCR Array in TREx BCBL1-RTA Cells, Related to Figure 7

		2^(-Ava.(Delta(Ct))			
	Gene name	siNS Dox 0h	siADAR1 Dox 0h	siNS Dox 48h	siADAR1 Dox 48h
1	ADAR adenosine deaminase RNA specific	2.00E-02	4.85E-03	3.26E-02	7.43E-03
2	CNTFR ciliary nerotrophic factor receptor	1.17E-05	1.63E-05	1.12E-05	2.48E-05
3	CRLF2 cytokine receptor like factor 2	6.81E-07	7.95E-07	2.26E-07	1.47E-07
4	CSF2RA colony stimulating factor 2 receptor alpha subunit	1.77E-06	2.15E-06	6.02E-06	1.92E-05
5	CSF3R colony stimulating factor 3 receptor	3.34E-06	6.51E-06	8.05E-06	1.37E-05
6	CXCL10 C-X-C motif chemokine ligand 10	1.58E-05	7.27E-05	1.57E-05	1.16E-04
7	EBI3 Epstein-Barr virus induced 3	6.01E-04	5.14E-04	5.84E-04	7.83E-04
8	F3 coagulation factor III, tissue factor	3.03E-06	2.53E-06	3.07E-05	4.78E-05
9	IFI16 interferon gamma inducible protein 16	4.15E-02	4.50E-02	4.57E-02	5.93E-02
10	IFI27 interferon alpha inducible protein 27	7.64E-05	9.24E-05	1.73E-03	1.86E-03
11	IFI30 IFI30 lysosomal thiol reductase	5.98E-02	6.76E-02	1.00E-01	1.14E-01
12	IFI35 interferon induced protein 35	2.47E-03	2.62E-03	5.65E-03	6.20E-03
13	IFI44 interferon induced protein 44	1.18E-05	2.16E-05	5.82E-05	8.09E-05
14	IFI44L interferon induced protein 44 like	6.50E-07	1.95E-06	4.05E-05	1.98E-05
15	IFI6 interferon alpha induced protein 6	1.01E-04	1.13E-04	4.56E-04	4.00E-04
16	IFIH1 interferon induced with helicase C domain	1.73E-03	2.17E-03	5.14E-03	6.80E-03
17	IFIT1 interferon induced protein with tetratricopeptide repeats 1	1.08E-05	1.37E-05	1.05E-04	9.95E-05
18	IFIT2 interferon induced protein with tetratricopeptide repeats 2	4.84E-05	6.00E-04	9.40E-05	7.28E-04
19	IFIT3 interferon induced protein with tetratricopeptide repeats 3	2.62E-04	6.55E-04	6.50E-04	1.24E-03
20	IFITM1 interferon induced transmembrane protein 1	5.43E-03	4.35E-03	1.52E-02	1.06E-02
21	IFITM2 interferon induced transmembrane protein 2	2.46E-05	2.55E-05	8.87E-05	9.44E-05
22	IFNA1 interferon alpha 1	1.83E-07	9.08E-07	7.18E-05	8.26E-05
23	IFNA14 interferon alpha 14	8.12E-07	2.21E-06	7.89E-06	8.96E-06
24	IFNA16 interferon alpha 16	5.10E-06	5.69E-06	3.48E-05	9.49E-05
25	IFNA2 interferon alpha 2	2.72E-06	3.34E-06	2.89E-04	3.64E-04
26	IFNA21 interferon alpha 21	7.26E-06	5.73E-06	3.92E-05	7.83E-05
27	IFNA4 interferon alpha 4	2.87E-05	2.73E-05	2.09E-04	4.26E-04
28	IFNA5 interferon alpha 5	1.95E-05	2.35E-05	5.15E-05	1.39E-04
29	IFNA6 interferon alpha 6	5.16E-05	7.87E-05	2.70E-04	3.82E-04
30	IFNA7 interferon alpha 7	3.26E-06	6.32E-06	4.21E-05	4.70E-05
31	IFNA8 interferon alpha 8	1.07E-05	1.11E-05	1.36E-04	2.80E-04
32	IFNAR1 interferon alpha and beta receptor subunit 1	5.08E-03	5.94E-03	5.15E-03	7.78E-03
33	IFNAR2 interferon alpha and beta receptor subunit 2	1.59E-02	1.75E-02	2.05E-02	2.89E-02
34	IFNBI interferon beta 1	9.22E-06	7.71E-06	2.37E-05	4.87E-05
35	IFNE interferon epsilon	4.18E-06	3.44E-06	9.31E-06	1.24E-05
36	IFNG interferon gamma	5.57E-05	4.60E-05	1.30E-04	9.92E-05
37	IFNGR1 interferon gamma receptor 1	2.24E-03	2.58E-03	2.53E-03	4.25E-03
38	IFNGR2 interferon gamma receptor 2	1.67E-03	1.90E-03	1.93E-03	2.94E-03
39	IFNK interferon kappa	1.67E-04	2.60E-04	1.08E-03	2.16E-03

40	IFNW1 interferon omega 1	6.16E-09	3.27E-08	2.64E-05	3.01E-05
41	IFRD1 interferon related developmental regulator 1	8.54E-03	1.03E-02	1.89E-02	2.75E-02
42	ILRD2 interferon related developmental regulator 2	7.56E-03	8.81E-03	6.67E-03	8.46E-03
43	IL10RA interleukin 10 receptor subunit alpha	7.74E-05	1.12E-04	1.46E-04	1.85E-04
44	IL10RB interleukin 10 receptor subunit beta	8.11E-03	9.20E-03	7.40E-03	1.19E-02
45	IL11RA interleukin 11 receptor subunit alpha	3.87E-04	4.41E-04	4.86E-04	5.83E-04
46	IL12B interleukin 12B	1.05E-05	1.52E-05	3.87E-05	5.29E-05
47	IL13RA1 interleukin 13 receptor subunit alpha 1	7.11E-03	8.25E-03	1.01E-02	1.21E-02
48	IL15 interleukin 15	2.01E-04	1.84E-04	1.70E-04	2.26E-04
49	IL20RA interleukin 20 receptor subunit alpha	8.65E-04	1.04E-03	9.98E-04	1.40E-03
50	IL20RB interleukin 20 receptor subunit beta	2.39E-04	2.67E-04	5.84E-04	6.75E-04
51	IL21R interleukin 21 receptor	1.75E-03	1.97E-03	8.30E-04	7.61E-04
52	IL22RA2 interleukin 22 receptor subunit alpha	2.77E-06	1.78E-06	9.67E-06	1.82E-06
53	IL28A interferon lambda 2	9.37E-07	3.22E-06	2.56E-05	1.90E-05
54	IL28RA interferon lambda receptor 1	4.83E-04	7.10E-04	5.88E-04	1.02E-03
55	IL29 interferon lambda 1	1.11E-06	3.19E-06	3.06E-05	3.63E-05
56	IL2RB interleukin 2 receptor subunit beta	4.24E-03	4.48E-03	2.74E-03	2.84E-03
57	IL2RG interleukin 2 receptor subunit gamma	3.22E-04	2.50E-04	3.57E-04	4.58E-04
58	IL31RA interleukin 31 receptor A	1.22E-05	1.60E-05	3.31E-05	4.44E-05
59	IL3RA interleukin 3 receptor subunit alpha	2.87E-05	3.51E-05	8.82E-05	9.18E-05
60	IL4R interleukin 4 receptor	7.44E-04	8.16E-04	4.18E-04	5.12E-04
61	IL5RA interleukin 5 receptor subunit alpha	2.24E-08	3.67E-08	6.27E-06	2.41E-05
62	IL6 interleukin 6	3.66E-03	5.09E-03	7.23E-03	8.23E-03
63	IL6R interleukin 6 receptor	3.73E-03	4.31E-03	4.51E-03	4.47E-03
64	IL7R interleukin 7 receptor	2.19E-06	3.14E-06	2.09E-05	1.10E-05
65	IL9R interleukin 9 receptor	3.09E-06	2.29E-06	3.85E-06	7.90E-06
66	IRF1 interferon regulatory factor 1	1.10E-03	1.43E-03	1.14E-03	1.60E-03
67	IRF2 interferon regulatory factor 2	7.17E-03	6.51E-03	5.75E-03	6.93E-03
68	IRF2BP1 interferon regulatory factor 2 binding protein 1	2.33E-04	2.61E-04	2.42E-04	2.55E-04
69	IRF3 interferon regulatory factor 3	7.21E-03	7.85E-03	9.89E-03	1.42E-02
70	IRF4 interferon regulatory factor 4	5.95E-02	7.21E-02	6.35E-02	8.20E-02
71	IRF5 interferon regulatory factor 5	5.63E-04	6.02E-04	6.48E-04	7.61E-04
72	IRF6 interferon regulatory factor 6	8.79E-04	9.37E-04	8.12E-04	1.04E-03
73	IRF7 interferon regulatory factor 7	1.42E-05	4.41E-05	1.91E-04	3.48E-04
74	IRF8 interferon regulatory factor 8	1.34E-06	1.20E-06	4.08E-05	3.47E-05
75	IRGM immunity related GTPase M	2.31E-04	3.01E-04	1.60E-04	2.03E-04
76	ISG15 ISG15 ubiquitin like modifier	3.22E-03	3.13E-03	1.92E-02	1.77E-02
77	LEPR leptin receptor	4.17E-04	3.52E-04	5.10E-04	6.05E-04
78	MPL MPL proto-oncogene, thrombopoietin receptor	1.38E-06	5.84E-06	2.74E-05	1.32E-05
79	MX1 MX dynamic like GTPase 1	2.74E-04	2.86E-04	4.64E-04	4.87E-04
80	OAS1 2'-5'-oligoadenylate synthetase 1	6.84E-04	7.63E-04	5.35E-03	4.92E-03
81	PSME1 proteasome activator subunit 1	2.40E-02	2.64E-02	5.84E-02	8.22E-02
82	PYHIN1 pyrin and HIN domain family member 1	2.19E-07	2.86E-07	1.18E-05	4.27E-05
83	SP110 SP110 nuclear body protein	1.88E-03	2.32E-03	3.38E-03	3.49E-03
84	TTN titin	2.96E-05	3.32E-05	5.90E-05	1.02E-04

Table S3. Small Interfering RNA (siRNA) Sequences, Related to STAR Methods

siRNA	Target sequence
Non-targeting	UGGUUUACAUGUCGACUAA
Cat# D-001810-10-50	UGGUUUACAUGUUGUGUGA
	UGGUUUACAUGUUUUCUGA
	UGGUUUACAUGUUUUCCUA
ADAR1	CCAUGAACCUCGAUUUAAA
Cat# L-004228-00-0050	GCGACUAUCUCUUCAAUGU
	CAGAUGACUUGAAUAGUAU
	GAAACCACCUGUUCAUUAC
IFIH1	GAAUAACCCAUCACUAAUA
Cat# L-013014-00-0005	GCACGAGGAAUAAUCUUUUA
	UGACACAAUUCGAAUGAUA
	CAAUGAGGCCCUACAAAUU
DDX58	GCACAGAAGUGUAUAUUGG
Cat# L-012511-00-0010	CCACAACACUAGUAAACAA
	CGGAUUAGCGACAAAUUUA
	UCGAUGAGAUUGAGCAAGA
MAVS	AAGUAUAUCUGCCGCAAUU
Cat# L-012511-00-0010	CAUCCAAAGUGCCUACUAU
	GCAAUGUGGAUGUUGUAGU
	CAUCCAAAUUGCCCAUCAA
ADAR2	CCGUGAUGACUUGAACGA
Cat# L-009263-01-0005	ACAUGAACUGAACGGUUAA
	CCAUUUACUUCUCGAGCAU
	GGGCCAUGUACCAGCGGAU
Kaposin	AUGCAUGGAUAGAGGCUUAUU
Customlized siRNA	GCACCAAGCACAACAUUAAUU
	UCCCAAAGAGUGUCAGUAAUU

Table S4. Primers Sequences, Related to STAR Methods

Name	Forward (5'-3')	Reverse (5'-3')
Kaposin	GTTGCAACTCGTGTCCTGAA	GGCTTAACGGTGTTTGTGG
ADAR1	GCTTGGGAACAGGGAATCG	CTGTAGAGAAACCTGATGAAGCC
DDX58	CTCTGCAGAAAGTGCAAAGC	GGCTTGGGATGTGGTCTACT
IFIH1	GGGGCATGGAGAATAACTCA	TGCCCATGTTGCTGTTATGT
MAVS	TTGTAGAGATTCTGCCTTACCTG	AGGGTATTGAAGAGATGCCA
IFNα1	CTGAATGACTTGGAAGCCTG	ATTTCTGCTCTGACAACCTC
IFNβ	CAGCAATTTTCAGTGTCAGAAGC	TCATCCTGTCCTTGAGGCAGT
IFNγ	TGACCAGAGCATCCAAAAGAG	CTCTTCGACCTCGAAACAGC
IL8	GTGCAGTTTTGCCAAGGAGT	TTATGAATTCTCAGCCCTCTTCAAAAACTTCTC
STAT1	AGGAAAAGCAAGCGTAATCTTCA	TATTCCCCGACTGAGCCTGAT
IRF9	CAAGTGGAGAGTGGGCAGTT	ATGGCATCCTCTTCCTCCTT
K8.1	AAAGCGTCCAGGCCACCACAGA	GGCAGAAAATGGCACACGGTTAC
ORF39	GGTTTCCCCTGCTACTTCAA	CATGCTTGGCCCGATATAC
ORF57	TGGACATTATGAAGGGCATCCTA	CGGGTTCGGACAATTGCT
ORF52	AAATCGAAGCCAGGGTCAGG	CTCCTCTTCGTCGCCTGTTATTG
vIL6	CGGTTCACTGCTGGTATCTG	CAGTATCGTTGATGGCTGGT
vtRNA1-1	CGACAGTTCTTTAATTGAAACAAGC	AAGGACTGGAGAGCGCCC
vtRNA1-2	CTTCGAGTACATTGTAACCACCTC	AGAGCTGGAAAGCACCCGC
vtRNA1-3	TTCGCGTGTCATCAAACCACCTC	AAGAGGGCTGGAGAGCGCC
NOP14	GTCAGAGCACACTGACCGAA	CCTCGCCAGGAACTGATTGT
GINS1	CAACTGCCTGCCTTCAACGA	TGCATTTGGCAAGACGCTAC
Kaposin	GGTGTTTGTGGCAGTTCATG	AACTCGTGTCCTGAATGCTAC
ACTIN	AAGACCTGTACGCCAACACA	AGTACTTGCGCTCAGGAGGA
pcDNA-kaposin	CGTTTAAACCCGCTGATCAGCCTC	CCAGCTTGGGTCTCCCTATAGTG
Kaposin-pcDNA	TACGACTCACTATAGGGAGACCCAAGC TGGATGGATAGAGGCTTAACGGTGTTT	GAAGGCACAGTCGAGGCTGATCAGCGGGTTT AAACGTCAGTGCGCGCCCGTTGC
Kaposin AtoG	GTTGGCGATTGGTGTTGTCCCCCCGA	AGACAAACGAGTGGTGGTATCGCCCCAAG

gRNA	gRNA sequence	
	Forward	Reverse
ADAR g1	CACCGTTATATCTCGGGCCTTGGTA	AAACTACCAAGGCCCGAGATATAAC
ADAR g2	CACCGTGACTCCTCTGCCCTGAATT	AAACAATTCAGGGCAGAGGAGTCAC
p150 g1	CACCGCGTAGTTCTCATGCAGCGGA	AAACTCCGCTGCATGAGAACTACGC
p150 g2	CACCGCTTGGACCTTCGCCGCCGTC	AAACGACGGCGGCGAAGGTCCAAGC