Table S1. Cell lines and culture media

Cell Line	Source	Medium	TP53 [1]	BRCA1 [2,3]	BRCA2 [2,3]
A2780	Dr. Gordon Mills	RPMI-1640			
CaOv3	ATCC	DMEM	ns (p.Q136*)	hetloss	
EFO21	Dr. Gordon Mills	RPMI-1640	ms (p.C124R)		hetloss
EFO27	Dr. Gordon Mills	RPMI-1640	ms (p.R273C)		
HeyA8	Dr. Gordon Mills	RPMI-1640			
IGROV1	Dr. Gordon Mills	RPMI-1640	ms (p.Y126C)	fs and hetloss	ms
OAW42	Dr. Gordon Mills	DMEM			
OC316	UCSF Tumor Bank	RPMI-1640	ms (p. R273H)		fs and hetloss
OVCAR3	ATCC	RPMI-1640	ms (p.R248Q)	hetloss	hetloss
OVCAR5	Dr. Gordon Mills	RPMI-1640	Ins		
SKOv3	Dr. Gordon Mills	McCoy's 5A	fs	hetloss	hetloss
SW626	ATCC	Leibovitz's L-15	ms (p.G262V)	hetloss	hetloss
UPN251	Dr. Gordon Mills	RPMI-1640		ins	

1. IARC TP53 database
2. Stordal B, et, al. BRCA1/2 mutation analysis in 41 ovarian cell lines reveals only one functionally deleterious BRCA1 mutation. *Mol Oncol*. 2013, 7(3):567-579
3. Domcke S, et, al. Evaluating cell lines as tumour models by comparison of genomic profiles. *Nature Communications*. 2013. DOI: 10.1038/ncomms3126

ns: nonsense
ms: missense
fs: frame shift
hetloss: heterozygous loss
ins: insertion

Table S2. GE Dharmacon siRNA catalogues

siRNA	Catalog
AATK	MQ-005301
ACRBP	MQ-013575
BMP2K	MQ-013575
CHUK	MQ-003473
EDN2	LQ-017723
IKBKB	MQ-003473
ILK	MQ-004499
RAPGEF3	MQ-007676
RAPGEF4	MQ-009511
SIK2	MQ-004778
STK24	MQ-004872
STK39	MQ-004875
TBK1	LQ-003788
TRIM27	MQ-006552

Table S3. Primers

Gene Symbol	GenBank Accession No.	Sequence
GAPDH	NM_002046.5	F: TCG ACA GTC AGC CGC ATC TTC TTT R: ACC AAA TCC GTT GAC TCC GAC CTT
AATK	NM_001080395.2	F: ACC GTC TAC CTC TTT GAC CAG GAA R: TCT TCC GCT GTG GAG CCA TTT
ACRBP	NM_032489.2	F: CTC AAG GAG ATA GAA GCT TC R: TTC CTG CTT GTG TTC TTG TG
BMP2K	NM_017593.3	F: GTT TCC CTC CAT AAA GGT TG R: TTC TGT GAT ACC TGT GAA GC
CHUK	NM_001278.4	F: CTG TAG CTC CAT GAT TTC AG R: AAG AAC ACT TTG ATC TCA GC
EDN2	NM_001302269.1	F: CCA AAG GCT GAG GGA CAT T R: ACG ACA CTA TCT CTT CCT CCA
IKBKB	NM_001190720.2	F: CAG ATT GCC ATC AAG CAG TG R: CAA GTT CTG CAT CCC CTC AG
ILK[1]	NM_001014795.2	F: GAC GAC ATT TTC ACT CAG TGC C R: ACG GTT CAT TAC ATT GAT CCG TG
RAPGEF3	NM_001098531.2	F: CTC TGG TGA ATG ATG CAC CC R: ACA GAA GCT CTA GGA TCT TC
RAPGEF4[2]	NM_001100397.1	F: CAC CTC TCA TTG AAC CTC ACG R: GTC CGG GAG TGA ACA CAT GG
SIK2	NM_015191.2	F: CAG CAG CTG CAG GAA CAT AG R: GAC TTG GCT GTG GGT AGG AG
STK24	NM_001032296.3	F: CTG AGT CAG TGT GAC AGT CC R: AGC TTC ACC TCG CCA TGC TC
STK39	NM_013233.2	F: ACA GAA ACG GTC AGA TTC AC R: TCC AAA ACT CCA CAT GTC AG
TBK1	NM_013254.3	F: ATA TCA TGC GTG TTA TAG GG R: GGT CTA AAT GGC AGT GAT CC
TRIM27	NM_006510.4	F: AGC AAA TCC AGA ACC AGC TC R: GGG TGA TGG CAC CAT TGA TG

[1]. PrimerBank ID: 62420874c1

[2]. PrimerBank ID: 155030205c1

Table S4. siRNA transfection conditions for custom screens

	Transfection Reagent	Negative siRNA Control	Positive siRNA Control	Paclitaxel (nM)
A2780	DharmaFECT 3	ON-TARGETplus Non-Targeting Control #4	siCOPB2	1.9
CaOv3	DharmaFECT 1	ON-TARGETplus Non-Targeting Control #3	siPLK1	0.4
EFO27	DharmaFECT 1	ON-TARGETplus Non-Targeting Control #4	siPLK1	37.3
HeyA8	DharmaFECT 1	ON-TARGETplus Non-Targeting Control #4	siPLK1	8.3
OAW42	DharmaFECT 1	ON-TARGETplus Non-Targeting Control #3	siPLK1	2.8
SKOv3	Lipofectamine RNAiMax	ON-TARGETplus Non-Targeting Control #4	siPLK1	4.0

Table S5. Antibodies for Western blot and immunohistochemistry

Description	Vendor	Catalog
Actin	Sigma	MAB1501
Detyrosinated tubulin	Abcam	Ab3201
α-Tubulin	Cell Signaling Technology	3873
GAPDH	Millipore	MAB374
phospho MAP4	Thermo Fisher	PA5-64526
MAP4	Santa Cruz Biotechnology	sc-135980
IKBKB	Cell Signaling Technology	8943
p38	Cell Signaling Technology	8690
phospho p38	Cell Signaling Technology	4511
STK39	Abcam	Ab128894
TBK1	Cell Signaling Technology	3013

Table S6. Paclitaxel sensitivity in 12 ovarian cancer cell lines.

siRNA	A2780	CaOV3	EFO21	EFO27	HEY	IGROV1	OAW42	OC316	OVCAR3	SKOv3	SW626	UPN251	*p* <0.05	>1.25 fold	>1.5 fold	>2 fold	siRNA
siAATK	-1.09	1.23	1.11	-1.03	**-1.09**	-1.1	1.03	-1.04	-1.1	-1.01	**-1.37**	-1.41	2	1	0	0	siAATK
siACRBP	**-3.33**	1.07	**-1.27**	-1.11	**-2.63**	**-1.47**	-1.16	**-2.08**	**-1.79**	**-3.33**	-1.15	**-4.00**	8	8	6	5	siACRBP
siBMP2K	-1.06	1.02	1.09	1.16	-1.14	**-1.3**	-1.05	**-1.14**	**-2.04**	1.06	-1.96	-1.52	3	4	3	1	siBMP2K
siCHUK	**-1.79**	-1.06	**-1.75**	**-1.23**	**-1.56**	**-1.69**	**-1.33**	**-2.5**	**-1.72**	**-2.27**	-1.41	**-2.04**	10	10	8	3	siCHUK
siEDN2	**-1.65**	-1.08	**-1.14**	1.16	**-2.89**	**-1.45**	1.05	-1.05	**-1.23**	**-1.7**	-1.18	**-1.43**	7	5	3	1	siEDN2
siIKBKB	**-1.64**	1.09	**-1.61**	-1.11	**-1.89**	**-1.64**	**-1.54**	**-1.45**	**-2.13**	**-2.17**	1.06	-2.86	8	9	8	3	siIKBKB
siILK	**1.23**	-1.05	**-1.37**	**-1.39**	-1.1	**-1.19**	-1.11	-1.06	-1.11	-1.14	1.06	**-1.2**	5	2	0	0	siILK
siRAPGEF3	**-1.56**	-1.09	**-1.69**	**-1.39**	**-1.67**	**-1.52**	**-1.27**	-1.19	**-3.57**	-1.3	1.12	**-1.82**	8	9	6	1	siRAPGEF3
siRAPGEF4	-1.22	**-1.16**	**-1.92**	-1.52	**-1.09**	-1.12	-1.03	**-1.3**	**-1.41**	1.08	1.21	1.2	5	4	2	0	siRAPGEF4
siSIK2	**-1.89**	**-1.33**	**-1.54**	-1.03	**-1.61**	**-1.85**	-1.02	**-6.25**	**-1.79**	**-2.63**	**-1.35**	**-5.56**	10	10	8	3	siSIK2
siSTIK24	1.06	1.05	**-1.64**	-1.06	**-1.18**	1.22	**-1.23**	**-1.39**	-1.11	-1.2	-1.16	-1.19	4	2	1	0	siSTIK24
siSTK39	**-1.37**	**-1.25**	**-1.64**	**-2.44**	**-2.63**	**-1.61**	**-1.16**	**-2.13**	**-1.82**	**-2.08**	**-1.37**	**-1.79**	12	11	8	4	siSTK39
siTBK1	**-1.77**	-1.01	**-1.69**	**-1.56**	**-1.66**	-1.13	1.04	1.01	**-1.43**	**-2.13**	-1.25	-1.18	6	7	5	1	siTBK1
siTRIM27	**-3.13**	-1.03	-1.1	-1.56	**-1.25**	-1.00	-1.05	**-1.67**	**-2.56**	**-1.75**	-1.27	**-1.79**	6	7	6	2	siTRIM27

Normalized to siControl in each cell line

Sensitization (<-1) : - siControl IC_{50} / siRNA IC_{50}, *P*<0.05 Bold

Desensitization (>1) : siRNA IC_{50}/ siControl IC_{50}, *P*<0.05 Bold

Table S7. Paclitaxel sensitivity of two siRNA combination in six ovarian cancer cell lines.

	Fold Change						*p*	>1.25	>1.5	>2
	A2780	CaOv3	EFO27	HeyA8	OAW42	SKOv3ip	<0.05	fold	fold	fold
AATK-CHUK	2.45	1.01	-1.12	-1.29	-1.28	-1.47	2	3	0	0
CHUK-AATK	2.70	1.62	-1.28	1.04	-1.37	-1.88	2	3	1	0
AATK-IKBKB	2.92	-1.25	-1.39	-1.31	-1.41	-1.07	4	4	0	0
IKBKB-AATK	3.07	-1.09	-1.21	-1.68	1.03	1.03	1	1	1	0
ACRBP-CHUK	2.02	1.04	1.41	-1.04	1.44	-1.29	1	2	0	0
CHUK-ACRBP	1.54	1.13	1.67	-1.06	1.02	-1.33	1	1	0	0
ACRBP-IKBKB	2.41	-1.06	1.05	-1.11	-1.24	-1.16	2	0	0	0
IKBKB-ACRBP	1.25	-1.05	1.35	-1.43	-1.07	1.08	1	1	0	0
ACRBP-ILK	1.46	-1.28	1.57	1.01	-1.26	-1.07	1	2	0	0
ILK-ACRBP	1.36	-1.05	1.82	-1.35	-1.72	-1.10	3	2	1	0
ACRBP-STK39	1.91	-1.04	1.08	1.20	-1.38	-1.26	2	2	0	0
STK39-ACRBP	3.16	-1.14	1.17	-1.00	-1.20	-1.41	2	1	0	0
BMP2K-CHUK	1.72	1.27	1.15	-1.40	-1.05	-1.02	1	1	0	0
CHUK-BMP2K	1.68	1.24	1.20	1.05	1.09	-1.65	1	1	0	0
CHUK-EDN2	1.07	1.11	-1.01	-1.77	1.03	-1.73	2	2	2	0
EDN2-CHUK	1.11	1.02	-1.18	-1.92	-1.09	-2.18	2	2	2	1
CHUK-IKBKB	-1.04	1.39	-1.22	-2.44	1.11	-1.31	2	2	1	1
IKBKB-CHUK	-1.21	-1.09	-1.25	-2.25	-1.42	1.05	3	3	1	1
EDN2-ACRBP	-1.05	1.18	1.40	-1.32	-1.12	-1.34	2	2	0	0
ACRBP-CHUK	-1.39	-1.17	1.73	1.21	-1.23	-1.05	2	1	0	0
EDN2-ILK	-1.14	1.15	-1.44	-2.36	-1.17	-1.76	3	3	2	1
ILK-EDN2	-1.15	1.02	1.48	-1.37	-1.63	-1.12	3	2	1	0
EDN2-TBK1	1.02	-1.01	-1.39	-2.21	-1.54	-2.27	4	4	3	2
TBK1-EDN2	-1.05	1.04	1.02	-1.71	-1.22	-1.81	3	2	2	0
IKBKB-ILK	-1.35	-1.62	-1.40	-2.62	-2.51	-1.05	5	5	3	2
ILK-IKBKB	-1.21	-1.17	-1.26	-1.80	-1.42	-1.34	4	4	1	0
IKBKB-TRIM27	-1.49	-1.38	-1.26	-3.25	-2.12	1.12	4	5	2	2
TRIM27-IKBKB	-1.13	1.05	-1.13	-1.68	-1.08	1.13	1	1	1	0
IKBKB-STK39	-1.26	-1.12	-1.65	-2.91	-2.02	-1.18	6	4	3	2
STK39-IKBKB	-1.73	1.14	-2.61	-1.20	-2.17	-1.78	5	4	4	2
IKBKB-TBK1	-1.22	1.00	-1.35	-2.89	-1.53	1.11	4	3	2	1
TBK1-IKBKB	-1.18	-1.11	-1.27	-2.11	-1.48	-1.39	4	4	1	1
ILK-STK39	-1.24	-1.09	1.12	-1.29	-1.68	-1.12	3	2	1	0
STK39-ILK	-1.12	-1.22	-1.01	-1.43	-1.81	-1.06	3	2	1	0
RAPGEF3-CHUK	-1.38	-1.05	1.35	-1.09	-1.27	-1.06	3	2	0	0
CHUK-RAPGEF3	-1.17	1.28	1.23	-1.29	-1.21	-1.08	3	1	0	0
RAPGEF4-CHUK	-1.15	-1.02	1.05	-1.58	1.01	-1.12	2	1	1	0
CHUK-RAPGEF4	-1.17	-1.45	1.08	-1.83	-1.03	-1.38	3	3	1	0
RAPGEF4-IKBKB	-1.17	1.10	-1.18	-2.05	1.03	1.15	2	1	1	1

IKBKB-RAPGEF4	-1.20	-1.05	-1.09	**-2.10**	**-1.27**	**1.20**	2	2	1	1
RAPGEF4-ILK	-1.06	1.03	-1.04	**-1.45**	**1.15**	-1.02	1	1	0	0
ILK-RAPGEF4	**-1.33**	-1.15	**1.55**	**-1.20**	**-1.20**	-1.04	3	1	0	0
RAPGEF4-RAPGEF3	1.07	1.13	1.06	**-1.29**	**1.77**	1.02	1	1	0	0
RAPGEF3-RAPGEF4	**-1.23**	-1.01	**1.56**	**-1.27**	**1.46**	**1.11**	2	1	0	0
TRIM27-SIK2	-1.14	**1.16**	1.11	**-1.30**	**1.29**	**-1.28**	2	2	0	0
SIK2-TRIM27	**-1.29**	-1.14	**1.51**	1.07	-1.06	**1.16**	1	1	0	0
TRIM27-STK39	-1.13	**1.28**	-1.02	**-1.21**	-1.01	**-1.15**	2	0	0	0
STK39-TRIM27	**-1.61**	-1.00	-1.19	1.12	-1.06	**-1.39**	2	2	1	0
STK24-SIK2	**-1.60**	-1.00	**1.26**	-1.01	1.09	**1.24**	1	1	1	0
SIK2-STK24	**-1.33**	**-1.20**	**1.55**	-1.01	-1.19	**1.53**	2	1	0	0
STK24-TBK1	**-1.45**	-1.00	-1.09	1.03	**1.31**	**-1.27**	2	2	0	0
TBK1-STK24	**-1.36**	-1.02	1.16	**-1.40**	-1.06	**-1.17**	3	2	0	0
TBK1-STK39	**1.11**	1.07	1.03	**-1.36**	**-1.55**	**-1.58**	3	3	2	0
STK39-TBK1	**1.11**	-1.08	**1.22**	**-1.06**	**-1.48**	**-1.44**	3	2	0	0
TBK1-ILK	-1.16	1.00	1.12	**-1.37**	**-1.46**	**-2.34**	3	3	1	1
ILK-TBK1	**-1.23**	-1.05	**1.50**	**-1.36**	-1.11	**-1.52**	3	2	1	0
TBK1-RAPGEF3	-1.11	1.07	**1.31**	**-1.47**	**-1.45**	**-1.35**	3	3	0	0
RAPGEF3-TBK1	**-1.32**	-1.19	**1.90**	**-1.22**	1.14	**-1.35**	3	2	0	0

Normalized to siControl in each cell line

Sensitization (<-1) : - siControl / siRNA, *P*<0.05 Bold

Desensitization (>1) : siRNA / siControl, *P*<0.05 Bold

Table S8. TMA patient information

Bank ID	Diagnosis	Grade	Stage
403	Clear Cell Carcinoma	High Grade	IV
2494	Clear Cell Carcinoma	High Grade	IIC
56	Clear Cell Carcinoma	High Grade	IIIC
181	Clear Cell Carcinoma	High Grade	IIC
642	Clear Cell Carcinoma	High Grade	IIIC
4214	Clear Cell Carcinoma (recurrent)	High Grade	Unknown
2179	Endometrioid Adenocarcinoma	High Grade	
502	Endometrioid Adenocarcinoma	Low Grade	IIIC
604	Endometrioid Adenocarcinoma	High Grade	IIIC
2318	Endometrioid Adenocarcinoma	Low Grade	IC
3360	Endometrioid Adenocarcinoma	High Grade	IIIC
395	Endometrioid Adenocarcinoma	Low Grade	IIC
585	Endometrioid Adenocarcinoma	High Grade	IV
2165	Endometrioid Adenocarcinoma	Low Grade	IB
2295	Endometrioid Adenocarcinoma	Low Grade	IIIC
2309	Endometrioid Adenocarcinoma	High Grade	IIIA
310	Endometrioid Adenocarcinoma	High Grade	IIIC
386	Endometrioid Adenocarcinoma	Low Grade	IA
602	Endometrioid Adenocarcinoma	High Grade	IIIC
2339	Endometrioid Adenocarcinoma (recurrent)	Low Grade	IV
1089	Endometroid Adenocarcinoma	Low Grade	IV
2303	Endometroid Adenocarcinoma	High Grade	IA
416	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IV
740	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
913	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
3412	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
4843	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
489	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
474	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
76	Malignant Mixed Mullerian Tumor (MMMT)	High Grade	IIIC
3341	Mixed Type Carcinoma	High Grade	Unknown
4380	Mixed Type Carcinoma	High Grade	IIIC
4387	Mixed Type Carcinoma	High Grade	IIIC
4530	Mixed Type Carcinoma	High Grade	IIIC
4711	Mixed Type Carcinoma	High Grade	IIIC
419	Mixed Type Carcinoma	High Grade	IIIC
622	Mixed Type Carcinoma	High Grade	IIC
679	Mixed Type Carcinoma	High Grade	IIIC
847	Mixed Type Carcinoma	High Grade	IIIC
871	Mixed Type Carcinoma	High Grade	IIIC

2399	Mixed Type Carcinoma	High Grade	IV
3361	Mixed Type Carcinoma	High Grade	IIIC
4261	Mixed Type Carcinoma	High Grade	IIIC
4628	Mixed Type Carcinoma	High Grade	IIIC
4933	Mixed Type Carcinoma	High Grade	IIIC
259	Mixed Type Carcinoma	High Grade	IIIC
286	Mixed Type Carcinoma	High Grade	IIIC
454	Mixed Type Carcinoma	High Grade	IIIC
470	Mixed Type Carcinoma	High Grade	IIIC
636	Mixed Type Carcinoma	High Grade	IB
890	Mixed Type Carcinoma	High Grade	IIIC
2169	Mixed Type Carcinoma	High Grade	IIIC
4145	Mixed Type Carcinoma	High Grade	IIIC
4717	Mixed Type Carcinoma	High Grade	IV
131	Mixed Type Carcinoma	High Grade	IIIC
524	Mixed Type Carcinoma	High Grade	IIIC
525	Mixed Type Carcinoma	High Grade	IIIC
625	Mixed Type Carcinoma	High Grade	IV
648	Mixed Type Carcinoma	High Grade	IIIC
2338	Mixed Type Carcinoma	High Grade	IIIC
4626	Mixed Type Carcinoma	High Grade	IIIC
4715	Mixed Type Carcinoma	High Grade	IIIC
4151	Mucinous Adenocarcinoma	High Grade	IIIC
2345	Mucinous Adenocarcinoma	Low Grade	IA
2547	Serous Carcinoma	High Grade	IIIC
3337	Serous Carcinoma	Low Grade	IIIC
119	Serous Carcinoma	High Grade	IIIC
2408	Serous Carcinoma	Low Grade	
8	Serous Carcinoma	High Grade	IIIC
88	Serous Carcinoma	High Grade	IIIC
385	Serous Carcinoma	High Grade	IIIC
482	Serous Carcinoma	High Grade	IIIC
507	Serous Carcinoma	High Grade	IIIC
603	Serous Carcinoma	High Grade	IIIC
659	Serous Carcinoma	High Grade	IIIC
757	Serous Carcinoma	High Grade	IIIC
799	Serous Carcinoma	High Grade	IIIC
861	Serous Carcinoma	High Grade	IIIC
906	Serous Carcinoma	High Grade	IIIC
2440	Serous Carcinoma	High Grade	IIIC
3514	Serous Carcinoma	High Grade	IIIC
4244	Serous Carcinoma	High Grade	IV
4289	Serous Carcinoma	High Grade	Unknown

4323	Serous Carcinoma	High Grade	IV
4567	Serous Carcinoma	High Grade	IIIC
4595	Serous Carcinoma	High Grade	Unknown
59	Serous Carcinoma	High Grade	IIIC
80	Serous Carcinoma	High Grade	IIIC
242	Serous Carcinoma	High Grade	IV
460	Serous Carcinoma	High Grade	IIIC
493	Serous Carcinoma	High Grade	IIIC
496	Serous Carcinoma	High Grade	IIIC
508	Serous Carcinoma	High Grade	IIIC
541	Serous Carcinoma	High Grade	IV
588	Serous Carcinoma	High Grade	IIIC
657	Serous Carcinoma	High Grade	IIIC
733	Serous Carcinoma	High Grade	IV
763	Serous Carcinoma	High Grade	IIIC
783	Serous Carcinoma	High Grade	IIIC
795	Serous Carcinoma	High Grade	IIIC
850	Serous Carcinoma	High Grade	IIIC
863	Serous Carcinoma	High Grade	IV
921	Serous Carcinoma	High Grade	IIIC
1043	Serous Carcinoma	High Grade	IIIC
2232	Serous Carcinoma	High Grade	IIIC
2419	Serous Carcinoma	High Grade	IIIC
2546	Serous Carcinoma	High Grade	IV
3356	Serous Carcinoma	High Grade	IIIC
3366	Serous Carcinoma	High Grade	IIIC
3375	Serous Carcinoma	High Grade	IV
3414	Serous Carcinoma	High Grade	IIIC
4253	Serous Carcinoma	High Grade	IIIC
4259	Serous Carcinoma	High Grade	IIIC
4276	Serous Carcinoma	High Grade	IV
4282	Serous Carcinoma	High Grade	IIIC
4521	Serous Carcinoma	High Grade	IIIC
4533	Serous Carcinoma	High Grade	IIIC
4544	Serous Carcinoma	High Grade	IIIC
4565	Serous Carcinoma	Low Grade	IIIC
4597	Serous Carcinoma	High Grade	IIC
4599	Serous Carcinoma	High Grade	IIIC
4602	Serous Carcinoma	High Grade	IIIC
4610	Serous Carcinoma	High Grade	IIIB
4726	Serous Carcinoma	High Grade	IIIC
4732	Serous Carcinoma	High Grade	IIIC
5	Serous Carcinoma	High Grade	IV

31	Serous Carcinoma	High Grade	IIIC
53	Serous Carcinoma	High Grade	IIIC
57	Serous Carcinoma	High Grade	IIIC
62	Serous Carcinoma	High Grade	IIIC
71	Serous Carcinoma	High Grade	IIIC
112	Serous Carcinoma	High Grade	IIIA
248	Serous Carcinoma	High Grade	IIIC
315	Serous Carcinoma	High Grade	IIIC
316	Serous Carcinoma	High Grade	IC
322	Serous Carcinoma	High Grade	IIIC
370	Serous Carcinoma	High Grade	IV
440	Serous Carcinoma	High Grade	IIIC
495	Serous Carcinoma	High Grade	IIC
527	Serous Carcinoma	High Grade	IV
549	Serous Carcinoma	High Grade	IIIC
614	Serous Carcinoma	High Grade	IV
630	Serous Carcinoma	High Grade	IIIC
660	Serous Carcinoma	High Grade	IIIC
663	Serous Carcinoma	High Grade	IIIC
680	Serous Carcinoma	High Grade	IIIC
716	Serous Carcinoma	High Grade	IIIC
761	Serous Carcinoma	High Grade	IIIC
772	Serous Carcinoma	High Grade	IIIC
832	Serous Carcinoma	High Grade	IIIC
928	Serous Carcinoma	High Grade	IV
2171	Serous Carcinoma	High Grade	IIIC
2227	Serous Carcinoma	High Grade	IV
2235	Serous Carcinoma	High Grade	IIIC
2240	Serous Carcinoma	High Grade	IV
2539	Serous Carcinoma	High Grade	IV
3484	Serous Carcinoma	High Grade	IIIC
3724	Serous Carcinoma	High Grade	IIIC
4383	Serous Carcinoma	High Grade	IIIC
4400	Serous Carcinoma	High Grade	IIIC
4514	Serous Carcinoma	Low Grade	IV
4516	Serous Carcinoma	Low Grade	IIIC
4613	Serous Carcinoma	High Grade	IIIC
4620	Serous Carcinoma	High Grade	IIIC
4621	Serous Carcinoma	High Grade	IIIC
4638	Serous Carcinoma	High Grade	IIIC
4662	Serous Carcinoma	High Grade	IV
4676	Serous Carcinoma	High Grade	IV
4716	Serous Carcinoma	High Grade	IIIC

4728	Serous Carcinoma	High Grade	IIIC
4735	Serous Carcinoma	High Grade	IIIC
4934	Serous Carcinoma	High Grade	IIIC
60	Serous Carcinoma	Low Grade	IIIC
69	Serous Carcinoma	High Grade	IIIC
97	Serous Carcinoma	High Grade	IIIC
143	Serous Carcinoma	High Grade	IIIC
147	Serous Carcinoma	High Grade	IIIC
149	Serous Carcinoma	High Grade	IIIC
157	Serous Carcinoma	High Grade	IIIC
213	Serous Carcinoma	High Grade	IIIC
260	Serous Carcinoma	High Grade	IIIC
262	Serous Carcinoma	High Grade	IIIC
394	Serous Carcinoma	High Grade	IV
488	Serous Carcinoma	High Grade	IV
547	Serous Carcinoma	High Grade	IIIC
575	Serous Carcinoma	High Grade	IIIC
631	Serous Carcinoma	High Grade	IIIC
637	Serous Carcinoma	High Grade	IV
643	Serous Carcinoma	High Grade	IIIC
666	Serous Carcinoma	High Grade	IIIC
2331	Serous Carcinoma	High Grade	IIIC
2398	Serous Carcinoma	High Grade	IIIC
2616	Serous Carcinoma	Low Grade	IIIC
3358	Serous Carcinoma	High Grade	IV
3506	Serous Carcinoma	High Grade	IIIC
4531	Serous Carcinoma	High Grade	IIIC
4624	Serous Carcinoma	High Grade	IIIC
4630	Serous Carcinoma	High Grade	IIIC
4633	Serous Carcinoma	High Grade	IIIC
4791	Serous Carcinoma	High Grade	IIIC
4816	Serous Carcinoma	High Grade	IIIC
4320	Serous Carcinoma (recurrent)	High Grade	IIIC
4724	Serous Carcinoma (recurrent)	Low Grade	IIIB
270	Serous Carcinoma (recurrent)	Low Grade	IIIC
613	Serous Carcinoma (recurrent)	High Grade	IA
4727	Serous Carcinoma (recurrent)	High Grade	IIIC
4729	Serous Carcinoma (recurrent)	High Grade	IIIC
2348	Serous Tumor of LMP		IA
2561	Serous Tumor of LMP		IIIA
896	Transitional Cell Carcinoma	High Grade	IIIC
475	Transitional Cell Carcinoma	High Grade	IIIC
214	Transitional Cell Carcinoma	High Grade	IC

947	Transitional Cell Carcinoma	High Grade	IIIC
4290	Transitional Cell Carcinoma (recurrent)	High Grade	IIIC
2582	Undifferentiated Carcinoma	High Grade	IV
720	Undifferentiated Carcinoma	High Grade	IV
4299	Undifferentiated Carcinoma	High Grade	IV
126	Undifferentiated Carcinoma	High Grade	IIIC
518	Undifferentiated Carcinoma	High Grade	IIIC

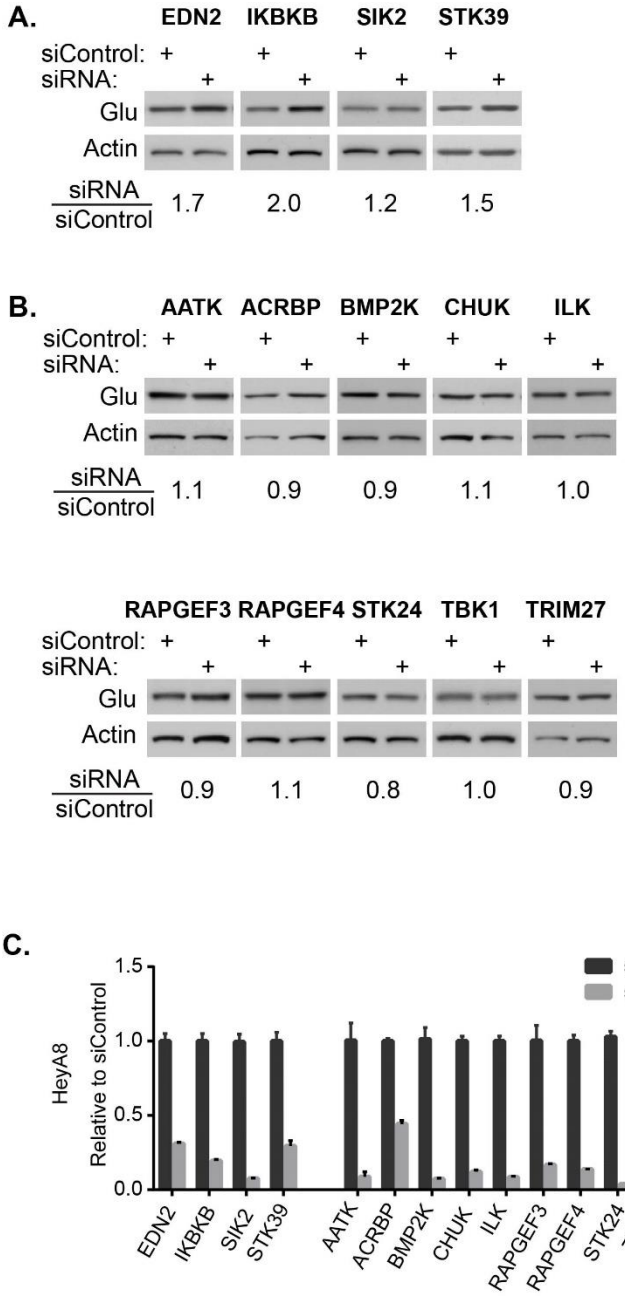

Figure S1. Effects of single kinase siRNA on microtubule stability. (**A**) siEDN2, siIKBKB, siSIK2 and siSTK39 treatment enhanced microtubule stability in the HeyA8 cell line. Cells were reversely transfected with kinase siRNA (siGENOME SMARTpool) for 48 hrs and lysed. Duplicate samples were loaded and immunoblots were performed with specific antibodies as indicated. (**B**) Treatment of other kinase siRNAs exhibited little or no changes in microtubule stability. Cell treatment is carried out as described above. (**C**) siRNA knockdown efficiency is presented using quantitation of mRNA. The columns indicate the mean. Data were obtained from two independent experiments.

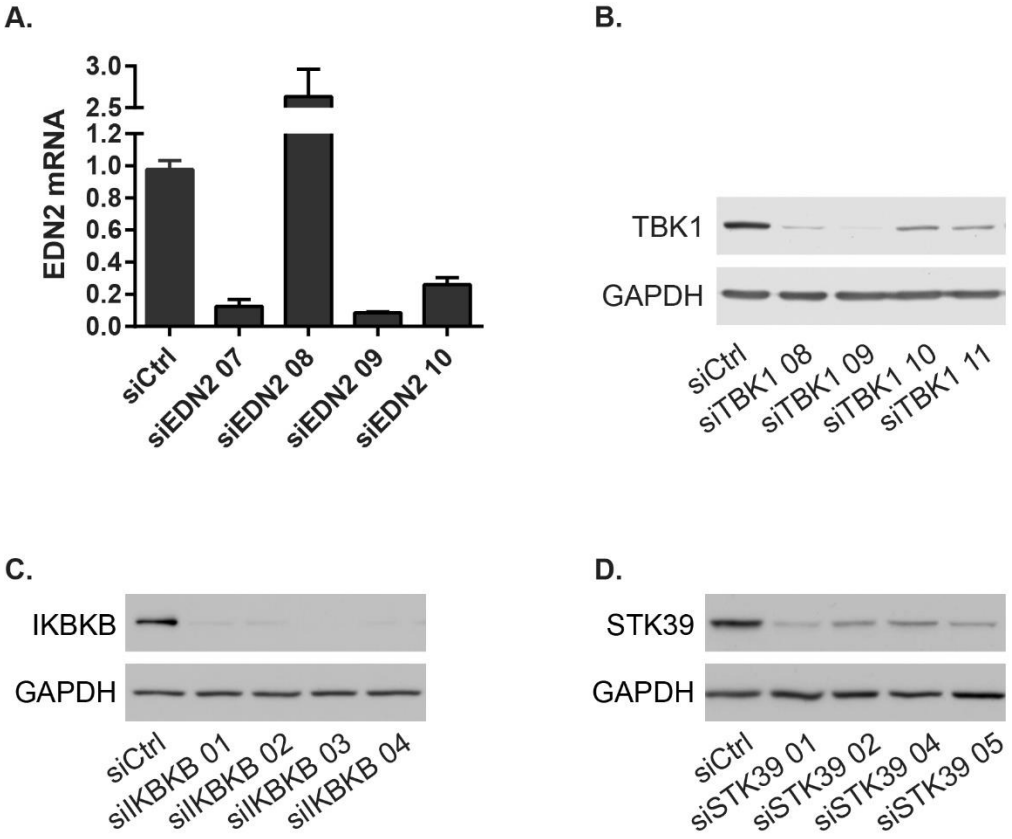

Figure S2. Knockdown efficiency was examined in SKOv3ip cells. (**A**) SKOv3ip cells were transfected with target siRNA and control siRNA for 72 hrs and EDN2 expression was quantified by qPCR due to lack of a good commercial antibody to perform Western blots. (**B**) TBK1 expression was tested using immunoblots with specific anti-TBK1 antibody. (**C**) IKBKB expression was tested using immunoblots with specific anti-IKBKB antibody. (**D)** STK39 expression was tested using immunoblots with specific anti-STK39 antibody.

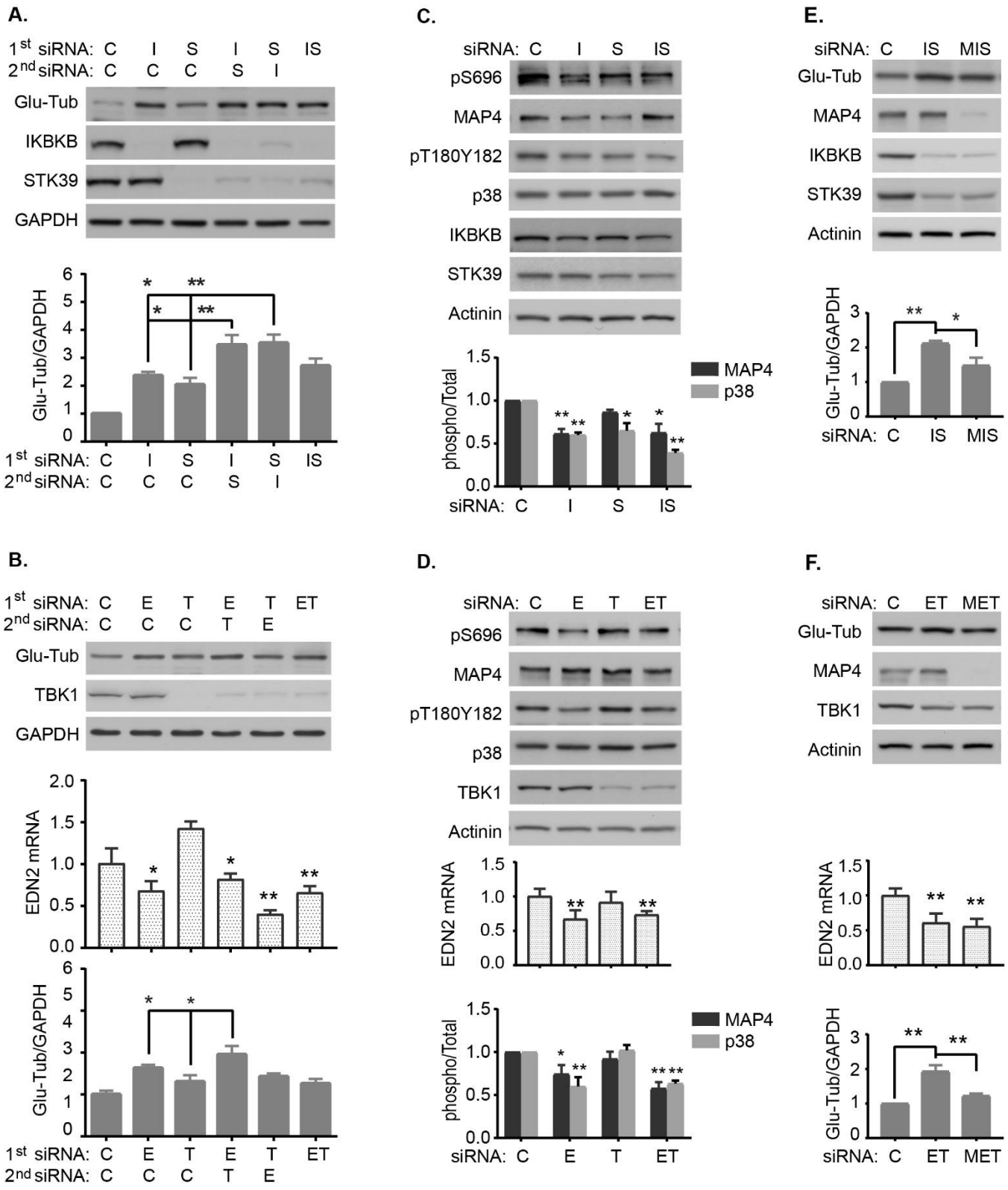
A.
1st siRNA: C I S I S IS
2nd siRNA: C C C S I
Glu-Tub
IKBKB
STK39
GAPDH
Glu-Tub/GAPDH
B.
1st siRNA: C E T E T ET
2nd siRNA: C C C T E
Glu-Tub
TBK1
GAPDH
EDN2 mRNA
Glu-Tub/GAPDH
C.
siRNA: C I S IS
pS696
MAP4
pT180Y182
p38
IKBKB
STK39
Actinin
phospho/Total
MAP4
p38
D.
siRNA: C E T ET
pS696
MAP4
pT180Y182
p38
TBK1
Actinin
EDN2 mRNA
phospho/Total
MAP4
p38
E.
siRNA: C IS MIS
Glu-Tub
MAP4
IKBKB
STK39
Actinin
Glu-Tub/GAPDH
F.
siRNA: C ET MET
Glu-Tub
MAP4
TBK1
Actinin
EDN2 mRNA
Glu-Tub/GAPDH

Figure S3. Sequential treatment of siIKBKB followed by siSTK39 or siEDN2 followed by siTBK1 increases microtubule stability. (**A-B**) Microtubule stability was examined in OVCAR5 cells. Cells were treated with siIKBKB / siSTK39 or siSTK39 or siEDN2 sequentially or simultaneously for 72 hrs. Cell lysates were collected and immunoblots were performed with specific antibodies as indicated. (**C-D**) p38-MAP4 signaling was examined in OVCAR5 cells. Cells were treated with siIKBKB / siSTK39 or siSTK39 or siEDN2 simultaneously for 24 hrs. Cell lysates were collected and immunoblots were performed with specific antibodies as indicated. (**E-F**) Microtubule stability was examined in OVCAR5 cells. Cells were treated with siMAP4, siIKBKB and siSTK39 or siMAP4, siSTK39 and siEDN2 sequentially for 72 hrs. Immunoblots were carried out as described in (A-B). The columns indicate the mean, and the bars indicate the S.E. (*p<0.05 and ** p<0.01 compared with control). Data were obtained from three independent experiments. (C: Control; I: IKBKB; S: STK39; M: MAP4; E: EDN2; T: TBK1).

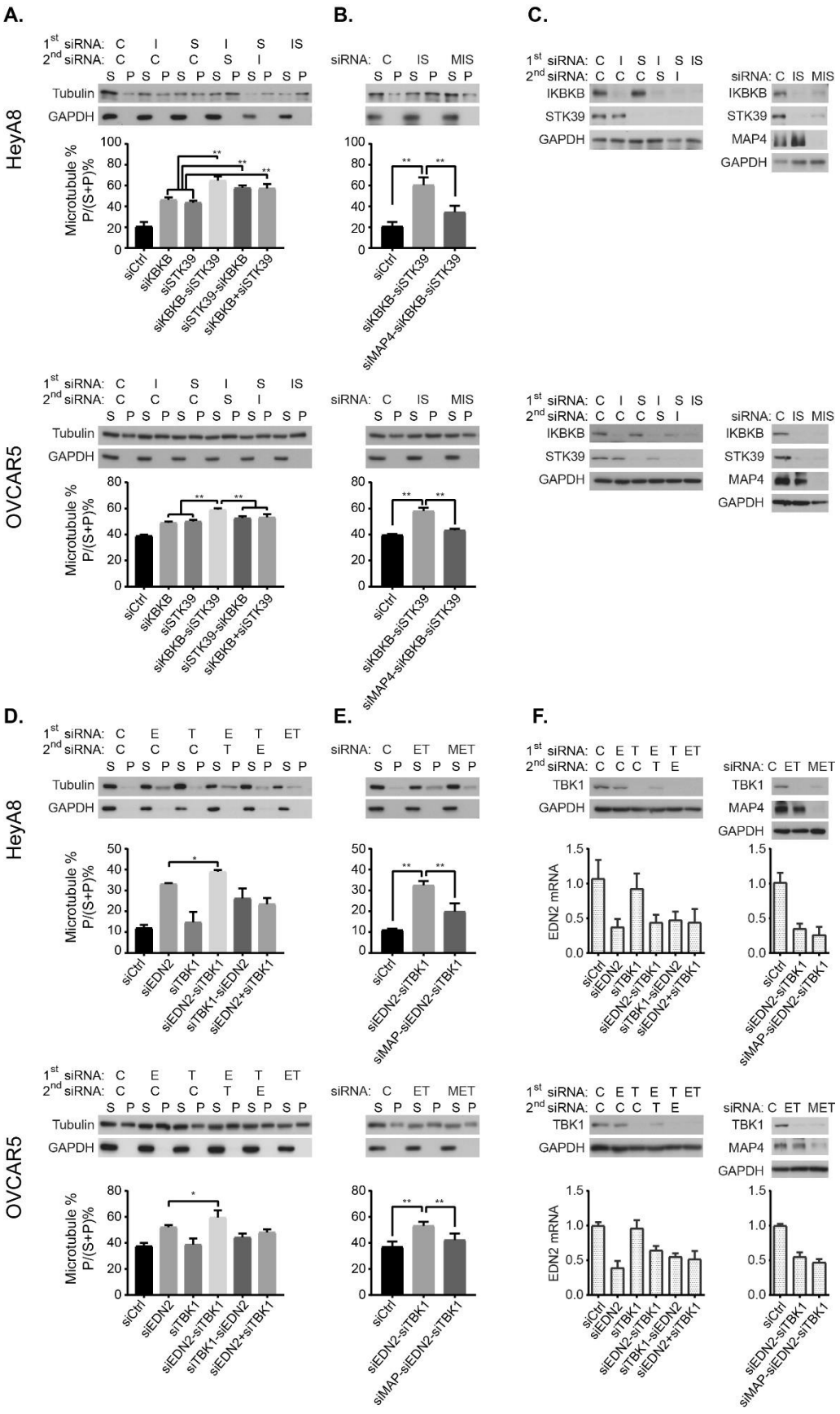
A.
B.
C.
HeyA8
OVCAR5
1st siRNA: C I S I S IS
2nd siRNA: C C C S I
S P S P S P S P S P S P
Tubulin
GAPDH
Microtubule % P/(S+P)%
siCtrl
siIKBKB
siSTK39
siIKBKB-siSTK39
siSTK39-siIKBKB
siIKBKB+siSTK39
siRNA: C IS MIS
siMAP4-siIKBKB-siSTK39
IKBKB
STK39
MAP4
D.
E.
F.
1st siRNA: C E T E T ET
2nd siRNA: C C C T E
siEDN2
siTBK1
siEDN2-siTBK1
siTBK1-siEDN2
siEDN2+siTBK1
siRNA: C ET MET
siMAP-siEDN2-siTBK1
TBK1
EDN2 mRNA

Figure S4. Sequential treatment of siIKBKB followed by siSTK39 or siEDN2 followed by siTBK1 increases microtubule stability and increasing microtubule stability by depletion of IKBKB/STK39 or EDN2/TBK1 is dependent upon p38-mdiated phosphorylation MAP4. (**A-D**) The microtubule and free-tubulin fractions was quantified in HeyA8 and OVCAR5 cell lines. Cells were treated with siIKBKB/siSTK39 (**A**) or siEDN2/siTBK1 (**B**) sequentially or simultaneously for 72 hrs. Western analysis of tubulin was performed with specific anti-tubulin antibody as indicated. (**C-D**) Microtubule stability was measured after knockdown of MAP4 in HeyA8 and OVCAR5 cell lines. Cells were treated with siMAP4, siIKBKB and siSTK39 (**C**) or siMAP4, siEDN2 and siTBK1 (**D**) sequentially for 72 hrs. Immunoblots were carried out as described in (**A**). (**E-F**) siRNA knockdown efficiency was determined by Western blot analysis and RT-PCR. The columns indicate the mean, and the bars indicate the S.D. (*p<0.05 and ** p<0.01 compared with its own control). Data were obtained from three independent experiments. (C: Control; I: IKBKB; S: STK39; M: MAP4; E: EDN2; T: TBK1).

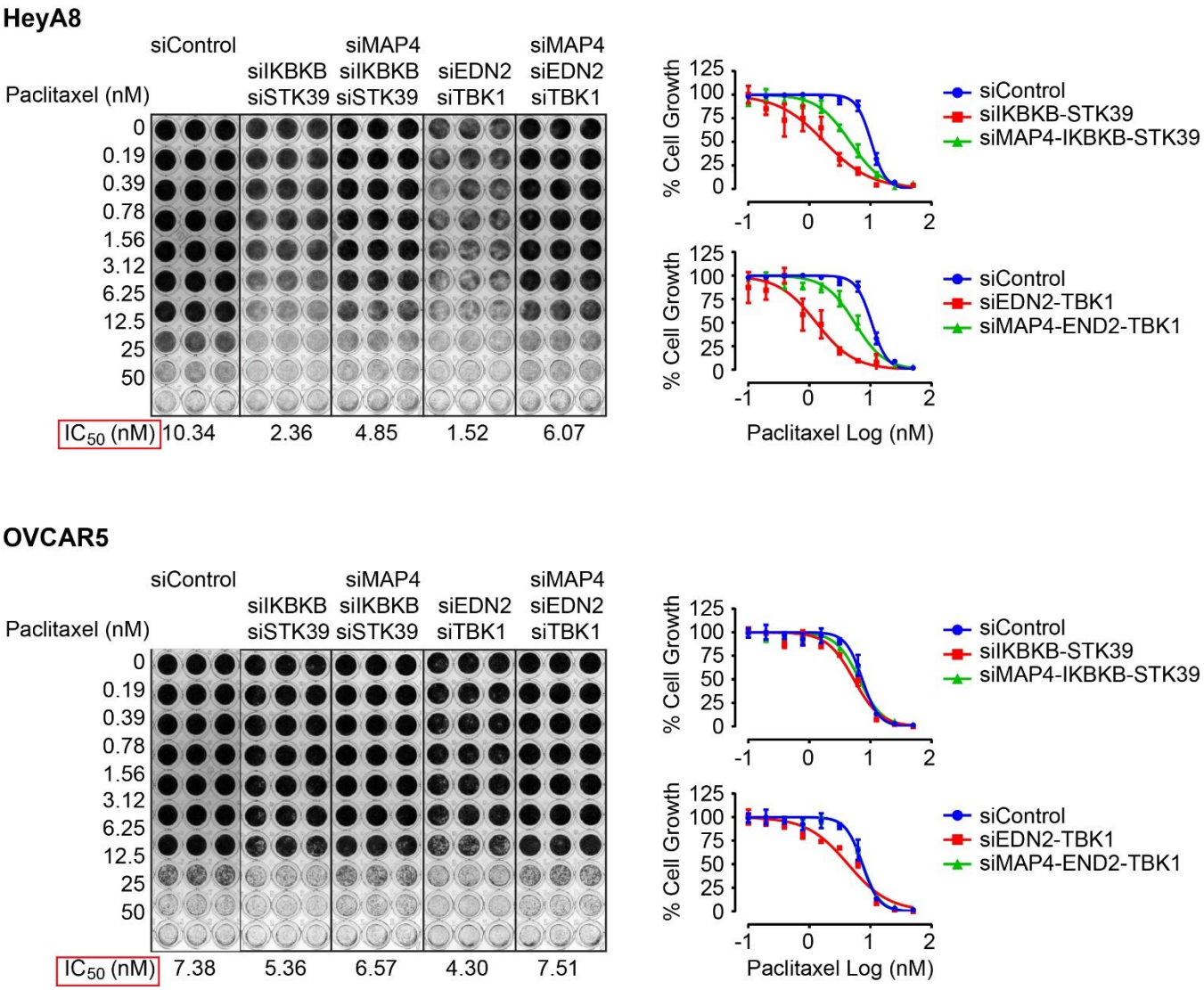

Figure S5. Increasing paclitaxel sensitivity by depletion of IKBKB and TK39 or EDN2 and TBK1 is dependent upon MAP4. Paclitaxel IC50 was examined in HEYA8 and OVCAR5 cells. Cells were treated with siMAP4, siIKBKB and siSTK39 or siMAP4, siSTK39 and siEDN2 by addition of paclitaxel treatment for 72 hrs. Cell growth was examined using an SRB assay. Cell mass was reflected by absorbance at 570 nm and the percentage of paclitaxel induced growth inhibition was calculated for each target siRNA relative to control siRNA. Dose response curves were generated using non-linear regression with the Least Squares fitting method and IC50 of paclitaxel were calculated using GraphPad Prism 7.

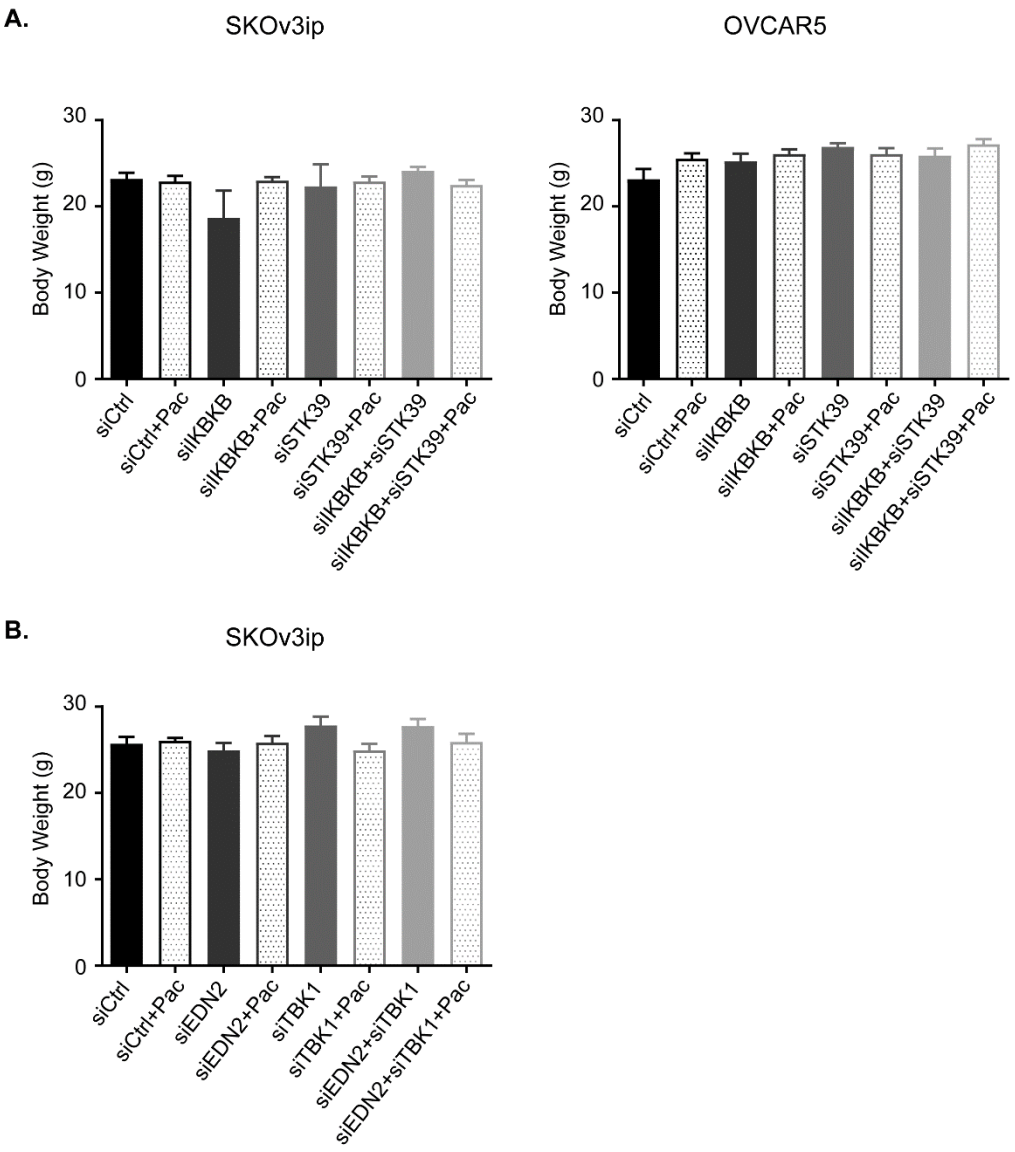

Figure S6. Mice tolerate the siRNA and paclitaxel treatment. (**A**) Mouse body weight under the combination treatment with IKBKB/STK39 and paclitaxel in SKOv3ip and OVCAR5 xenograft models**.** (**B**) Mouse body weight during combination treatment with EDN2/TBK1 and paclitaxel in SKOv3ip xenograft model. Athymic nude mice were injected intraperitoneally with 1.0 x 10^6 SKOv3ip cells or OVCAR5 cells and randomly assigned to groups of 10. Mice were treated with paclitaxel and/or DOPC-siRNA 1 week after cell inoculation. 10 ug of siRNA was injected i.p. biweekly and 1 mg/kg of paclitaxel for SKOv3ip or 3 mg/kg for OVCAR5 or diluent were injected i.p. once a week. Body weight was assessed weekly and the body weight at the end of treatment was plotted. The columns indicate the mean ± S.E..