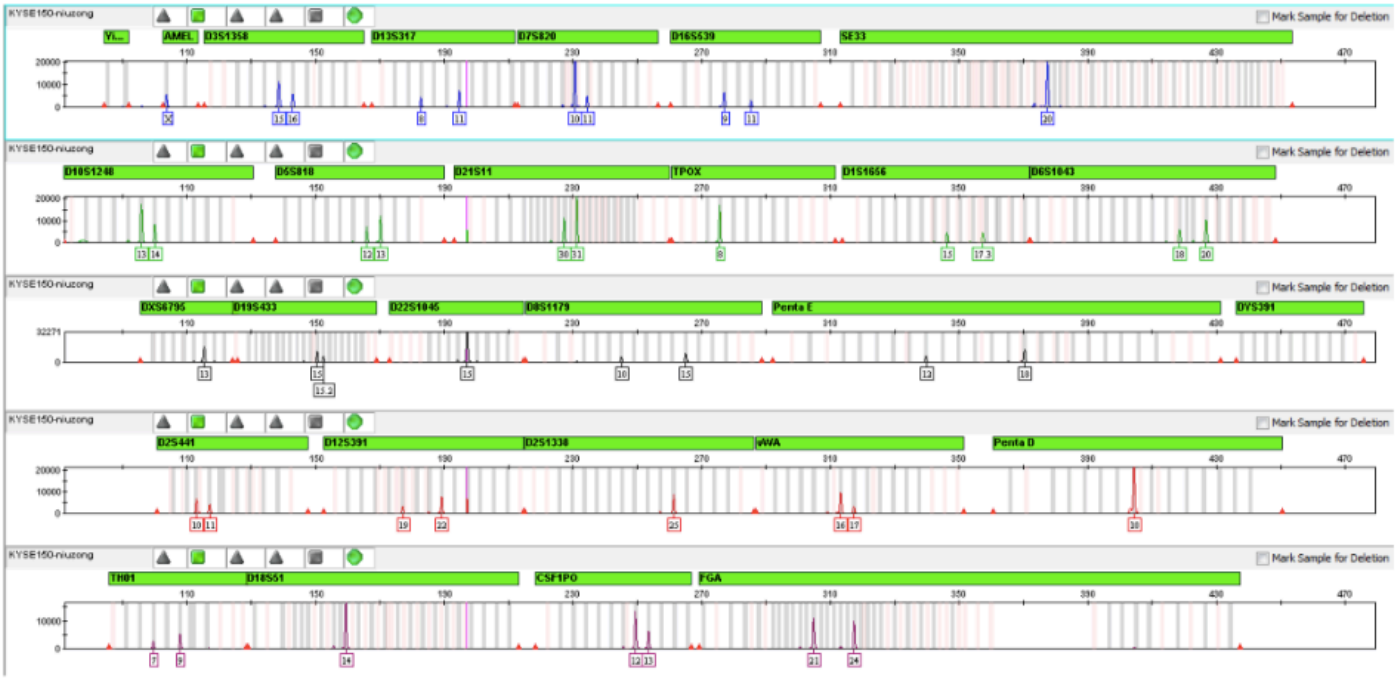
Supplementary Figure legends:

Figure S1: The STR profiling of our KYSE150 cells
Figure S2: The sequencing of PARK2 KO in EC9706 and KYSE150 cells.
Figure S3: The sequencing of YAP KO in EC9706 cells.
Figure S4: A and B: PARK2 knockout increased the wound-healing ability in EC9706 cells and KYSE150 cells compared with the wild type cells. **C:** Overexpression of PARK2 inhibited the wound-healing ability compared with control cells in EC9706 cells.**D:** Colony formation ability decreased in PARK2 overexpression cells compared with control cells in EC9706 cells.
Figure S5: A: PARK2 knockout did not increase YAP mRNA level in EC9706 cells. **B:** *In vitro* ubiquitination assay showed that PARK2 could not induce the poly-ubiquitination of YAP, while the FBXW7 was used as the positive control for YAP ubiquitination. **C:** YAP KO could reduce cell migration and invasion capacity in EC9706 cells, which effect could not be rescued by further PARK2 knockout. **D:** PARK2 knockout did not change the protein levels of other Hippo signaling components, including TAZ, LATS1/2, MST1/2 in EC9706 and KYSE150 cells. **E:** YAP K90R mutant was more stable compared with YAP WT form. **F:** PARK2 could facilitate YAP poly-ubiquitination in HEK293 cells.

Table S1: The primer sequences for Real-time PCR
Table S2: Small interfering RNA sequence for YAP and PINK1
Table S3: The guide RNA sequence for PARK2 and YAP knockout

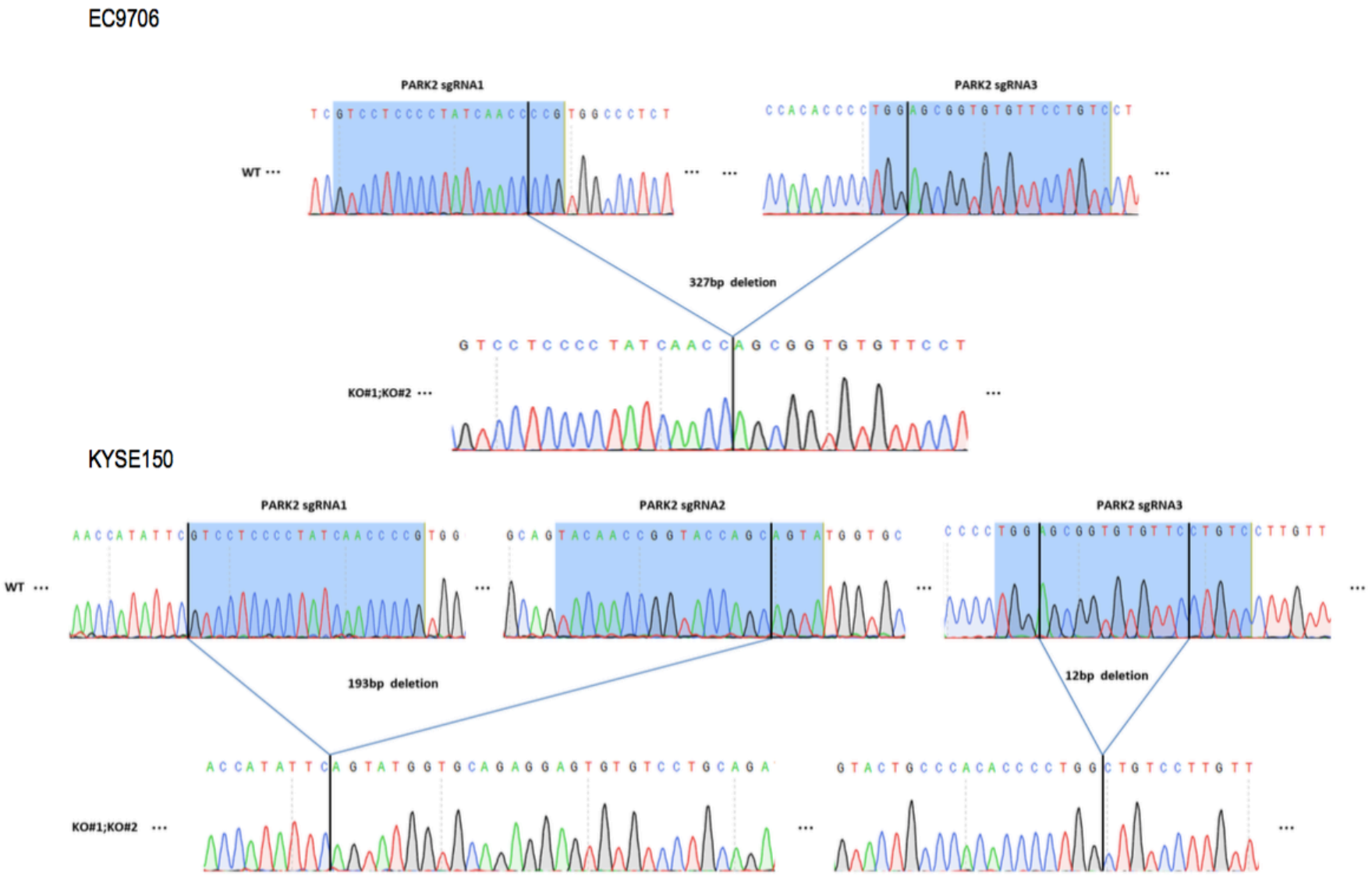
Supplementary Figure 1

KYSE150

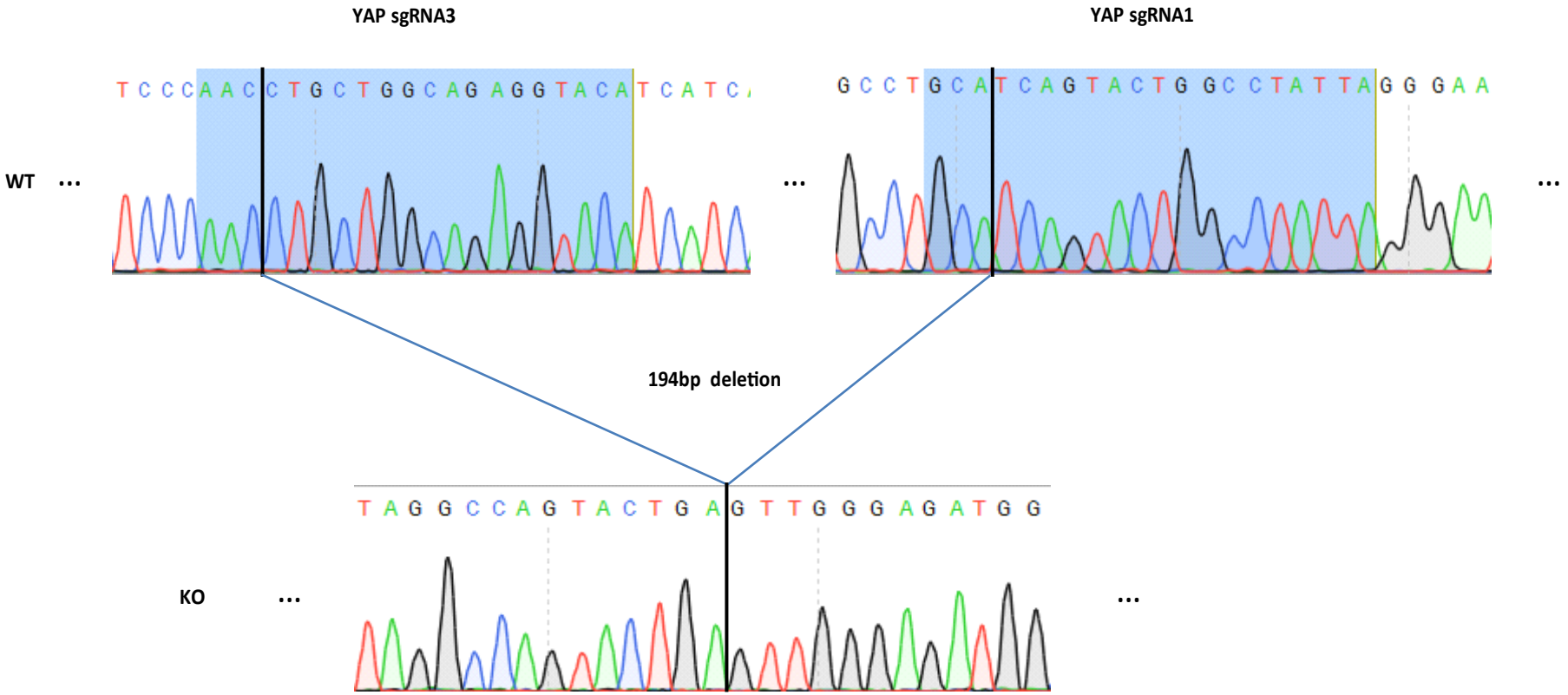


EV	Cell No.	Cell name	Locus names								
			D5S818	D13S317	D7S820	D16S539	VWA	TH01	AM	TPOX	CSF1PO
	Query (Your Cell)		12,13	8,11	10,11	9,11	16,17	7,9	X,X	8,8	12,13
1.00(36/36)	375	KYSE-150	12,13	8,11	10,11	9,11	16,17	7,9	X,X	8,8	12,13

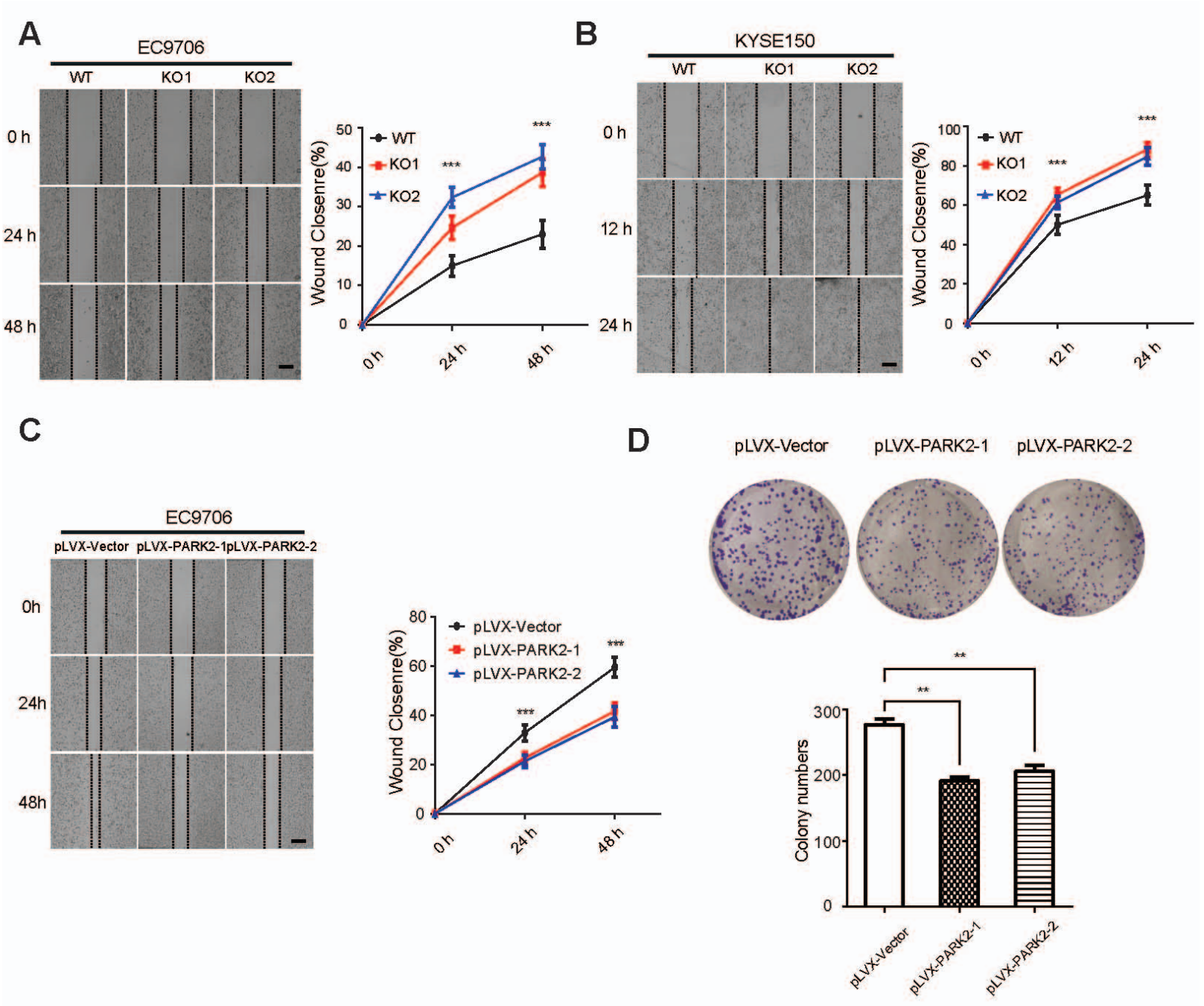
Supplementary Figure 2



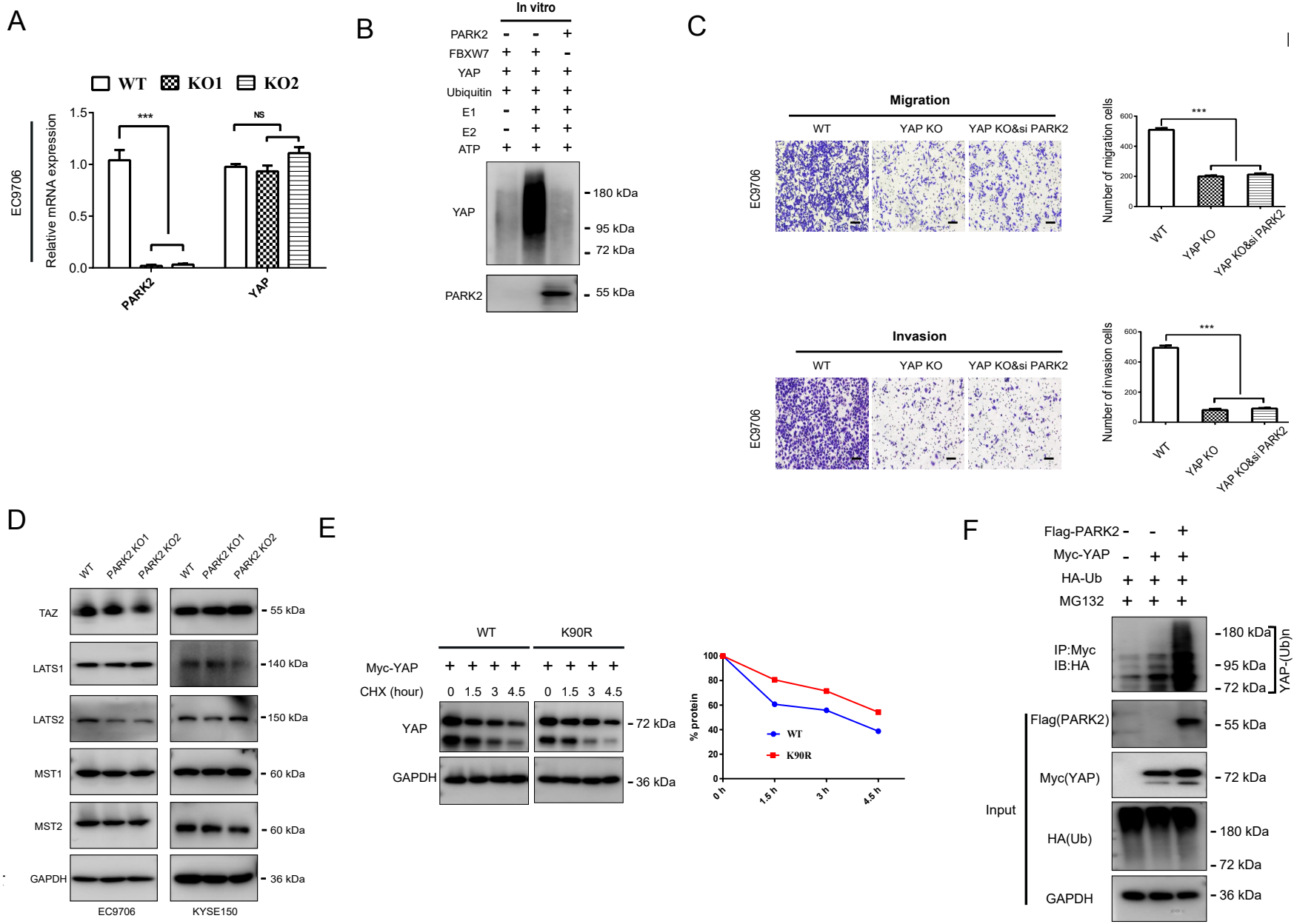
Supplementary Figure 3



Supplementary Figure 4



Supplementary Figure 5



Supplementary table 1

Primer sequence for QPCR

Oligos	Sequence (5'-3') forward	Sequence (5'-3') reverse
PARK2	CACACCCCACCTCTGACAAG	CTAAGCAAATCACGTGGCGG
PINK1	CGAAGCCATCTTGAACACAA	GTTGCTTGGGACCTCTCTTG
ANKRD1	AGAACTGTGCTGGGAAGACG	GCCATGCCTTCAAAATGCCA
CTGF	CTCGCGGCTTACCGACTG	GGCTCTGCTTCTCTAGCCTG
CYR61	AGCAGCCTGAAAAAGGGCAA	AGCCTGTAGAAGGGAAACGC
GAPDH	ACGGGAAGCTTGTCATCAAT	TGGACTCCACGACGTACTCA

Supplementary table 2

Small interfering RNA sequence for YAP and PINK1

Oligos	Sequence (5'-3') forward	Sequence (5'-3') reverse
si YAP-1	CACCUAUCACUCUCGAGAUdTdT	AUCUCGAGAGUGAUAGGUGdTdT
si YAP-2	GCUCAUUCCUCUCCAGCUUdTdT	AAGCUGGAGAGGAAUGAGCdTdT
si YAP-3	CUAAGCAUGAGCAGCUACAdTdT	UGUAGCUGCUCAUGCUUAGdTdT
Negative control	UUCUCCGAACGUGUCACGUTT	ACGUGACACGUUCGGAGAATT
si PINK1-1	CCUAUGAAAUCUUCGGGCUdTdT	AGCCCGAACAUUUCAUAGGdTdT
si PINK1-2	CGCAAAUGUGCUUCAUCUAdTdT	UAGAUGAAGCACAUUUGCGdTdT
Negative control	UUCUCCGAACGUGUCACGUTT	ACGUGACACGUUCGGAGAATT

Supplementary table 3

The guide RNA sequence for PARK2 and YAP knockout

Oligos	Sequence (5'-3') forward	Sequence (5'-3') reverse
PARK2 sg RNA-1	CACC GTCCTCCCCTATCAACCCCG	AAAC CGGGGTTGATAGGGGAGGAC
PARK2 sg RNA-2	CACC G TACAACCGGTACCAGCAGTA	AAAC TACTGCTGGTACCGGTTGTA C
PARK2 sg RNA-3	CACC GACAGGAACACACCGCTCCA	AAAC TGGAGCGGTGTGTTCCTGTC
YAP sg RNA-1	CACCGTAATAGGCCAGTACTGATGC	AAACGCATCAGTACTGGCCTATTAC
YAP sg RNA-2	CACCGACCCCCACTGGAGTAGTCTC	AAACGAGACTACTCCAGTGGGGGTC
YAP sg RNA-3	CACCGTGTACCTCTGCCAGCAGGTT	AAACAACCTGCTGGCAGAGGTACAC