FIG. 1

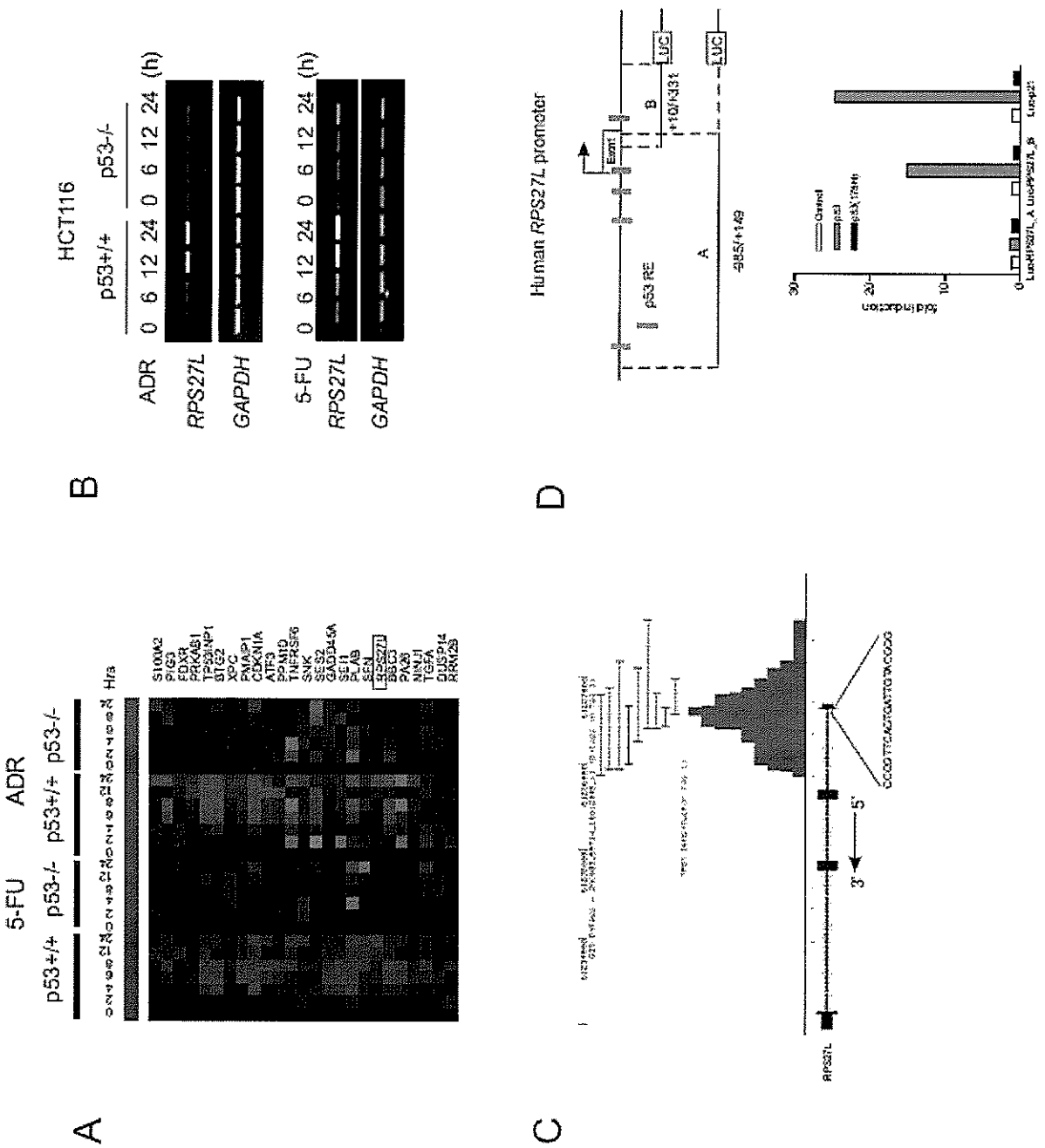

A
5-FU
ADR
p53+/+
p53-/-
p53+/+
p53-/-
S100A2
PIG3
EDXR
PRKAB1
TP53INP1
ST22
XPC
PMAIP1
CDKN1A
ATF3
PPM1D
TNFRSF6
SNK
SESN2
GADD45A
SEI1
PLAB
SEN
RPS27L
BBC3
PAI3
NINJ1
TGFA
DUSP14
RRM2B
B
HCT116
p53+/+
p53-/-
ADR
0 6 12 24 0 6 12 24 (h)
RPS27L
GAPDH
5-FU
0 6 12 24 0 6 12 24 (h)
RPS27L
GAPDH
C
RPS27L
3'
5'
D
Human RPS27L promoter
Exon1
B
LUC
+19/+33
p53 RE
A
-985/+149
LUC
Control
p53
p53(1-294)
fold induction
30
20
10
0
Luc-
Luc-H
Luc-H
Luc-H

FIG. 2

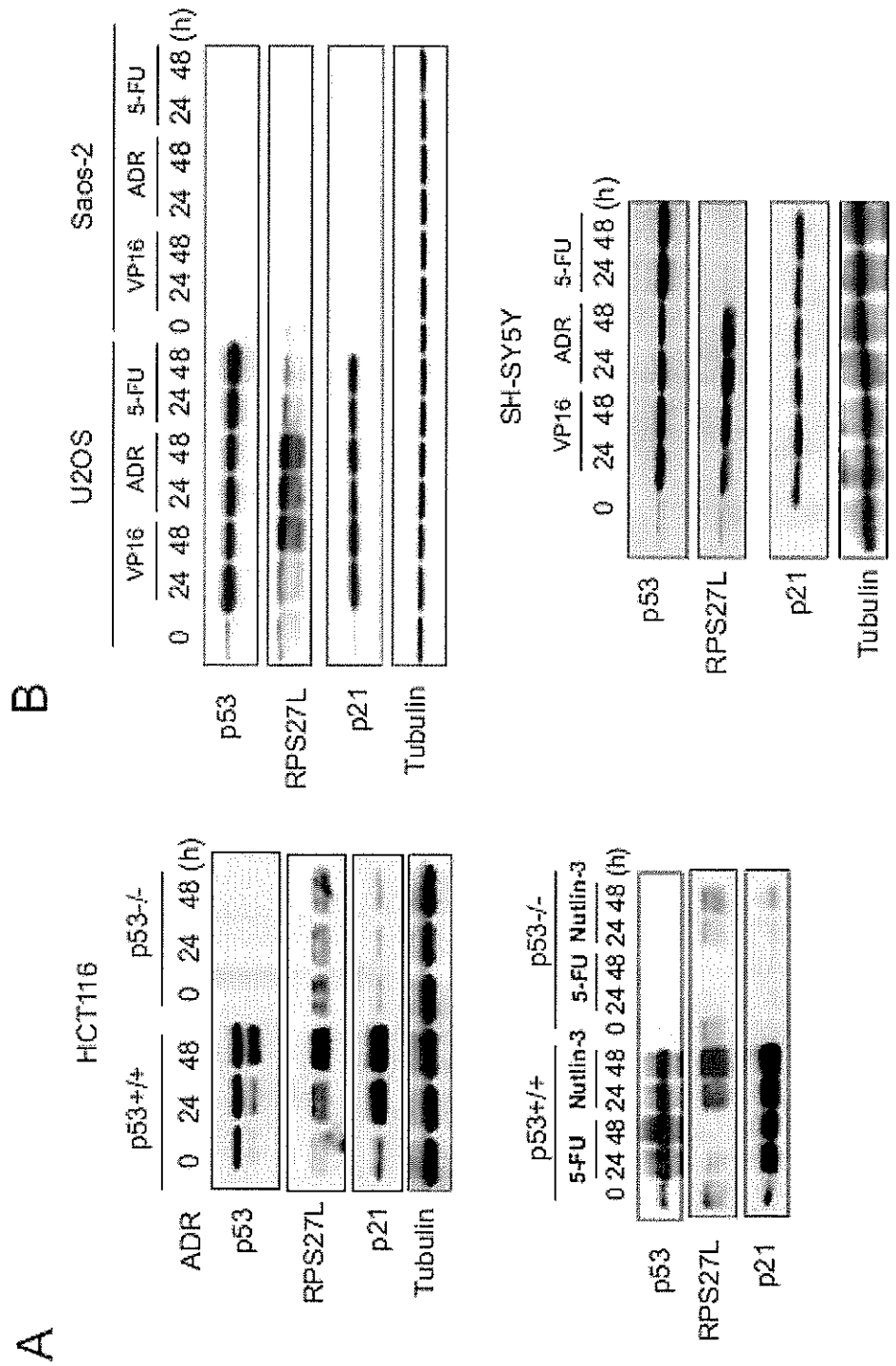

A
HCT116
p53+/+
p53-/-
ADR
0 24 48 0 24 48 (h)
p53
RPS27L
p21
Tubulin
p53+/+
p53-/-
5-FU Nutlin-3 5-FU Nutlin-3
0 24 48 24 48 0 24 48 24 48 (h)
p53
RPS27L
p21
B
U2OS
Saos-2
VP16 ADR 5-FU VP16 ADR 5-FU
0 24 48 24 48 24 48 0 24 48 24 48 24 48 (h)
p53
RPS27L
p21
Tubulin
SH-SY5Y
VP16 ADR 5-FU
0 24 48 24 48 24 48 (h)
p53
RPS27L
p21
Tubulin

FIG. 3

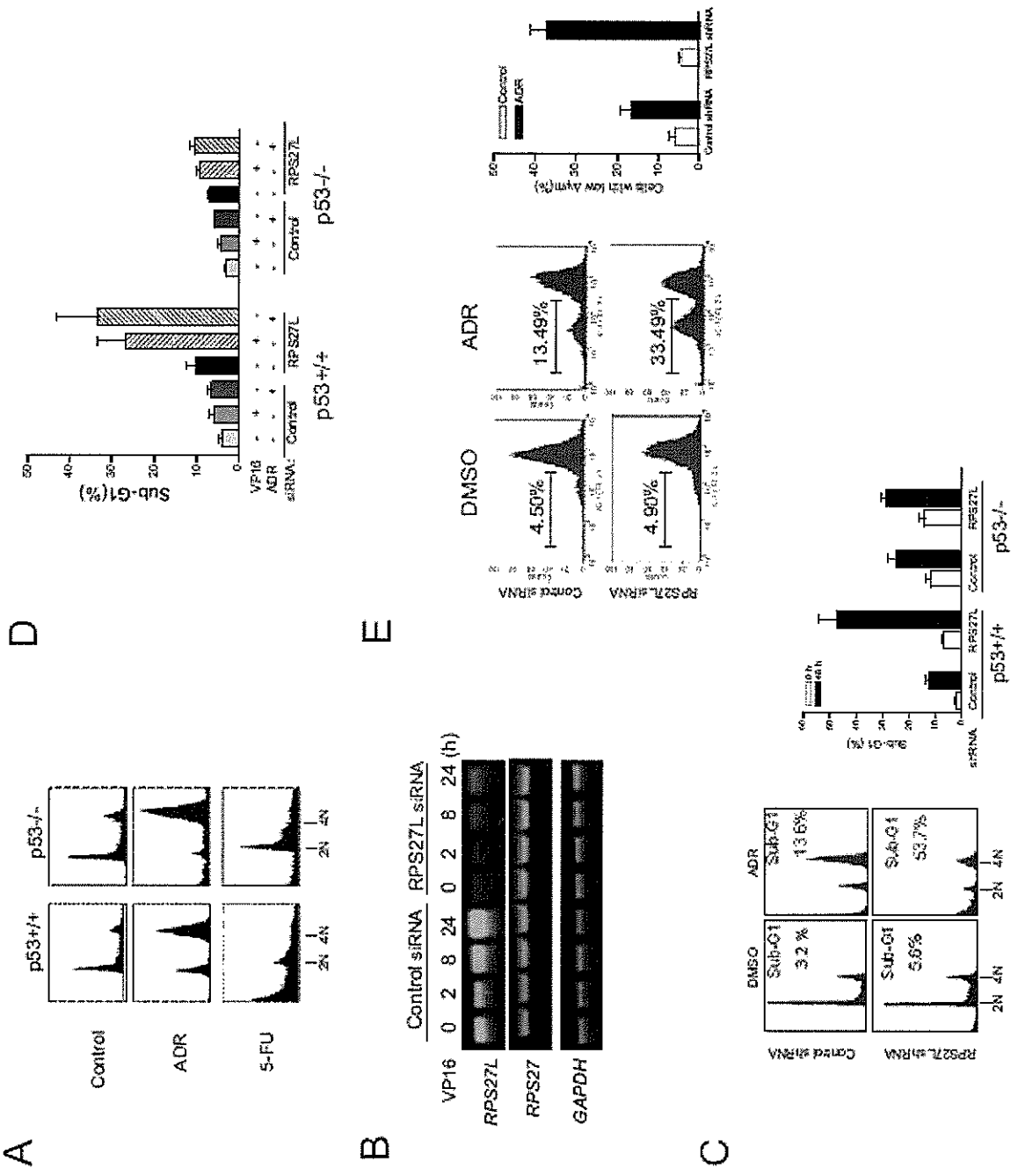

A
Control
ADR
5-FU
p53+/+
p53-/-
2N
4N
B
Control siRNA
RPS27L siRNA
0 2 8 24 0 2 8 24 (h)
VP16
RPS27L
RPS27
GAPDH
C
DMSO
ADR
Sub-G1
3.2 %
5.6%
13.6%
53.7%
Control siRNA
RPS27L shRNA
D
Sub-G1(%)
VP16
ADR
siRNA
Control
RPS27L
p53+/+
p53-/-
E
DMSO
ADR
4.50%
4.90%
13.49%
33.49%
Control siRNA
RPS27L siRNA
Cells with low Δψm(%)

FIG. 4

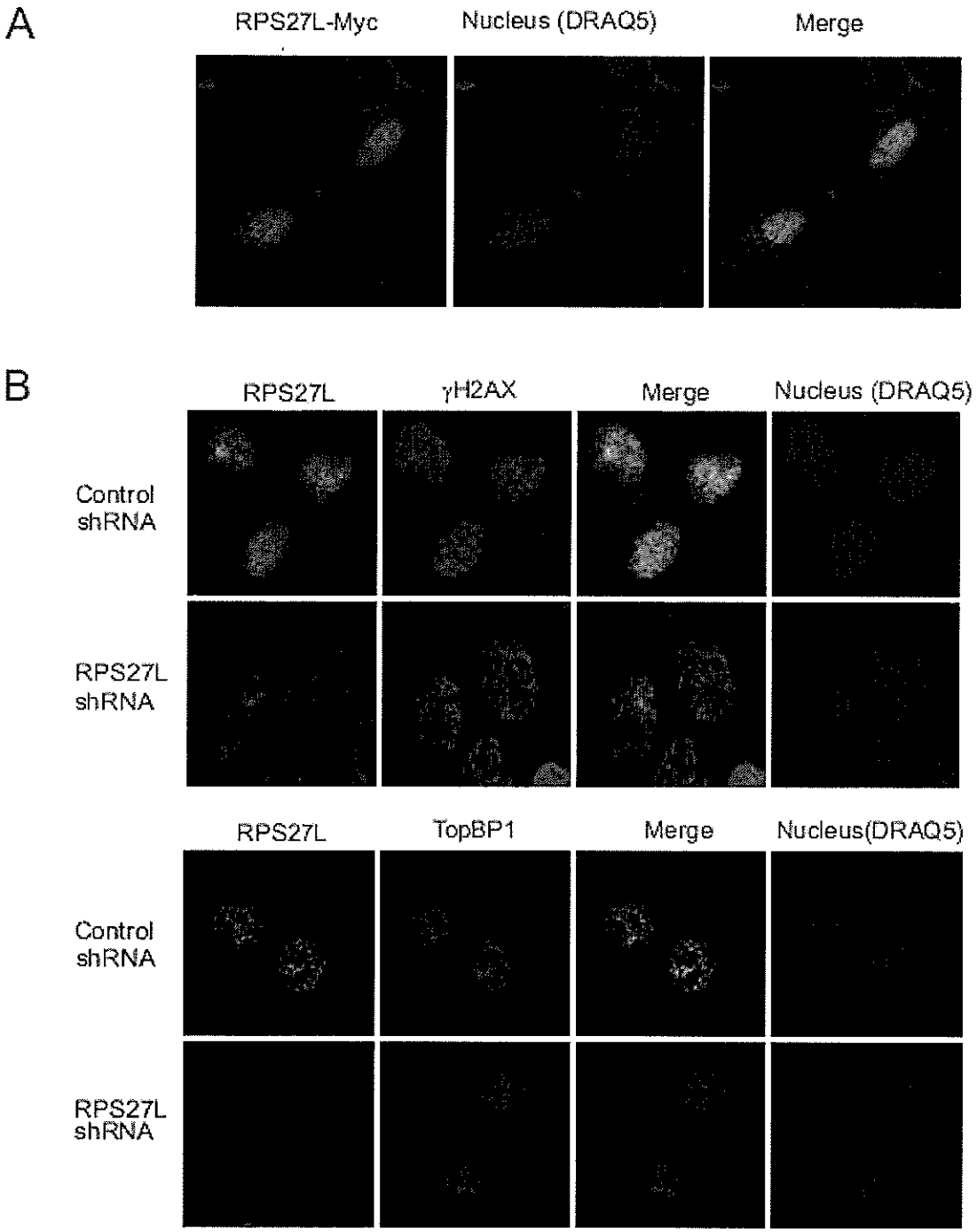

A
RPS27L-Myc
Nucleus (DRAQ5)
Merge
B
RPS27L
γH2AX
Merge
Nucleus (DRAQ5)
Control shRNA
RPS27L shRNA
RPS27L
TopBP1
Merge
Nucleus(DRAQ5)
Control shRNA
RPS27L shRNA

FIG. 5

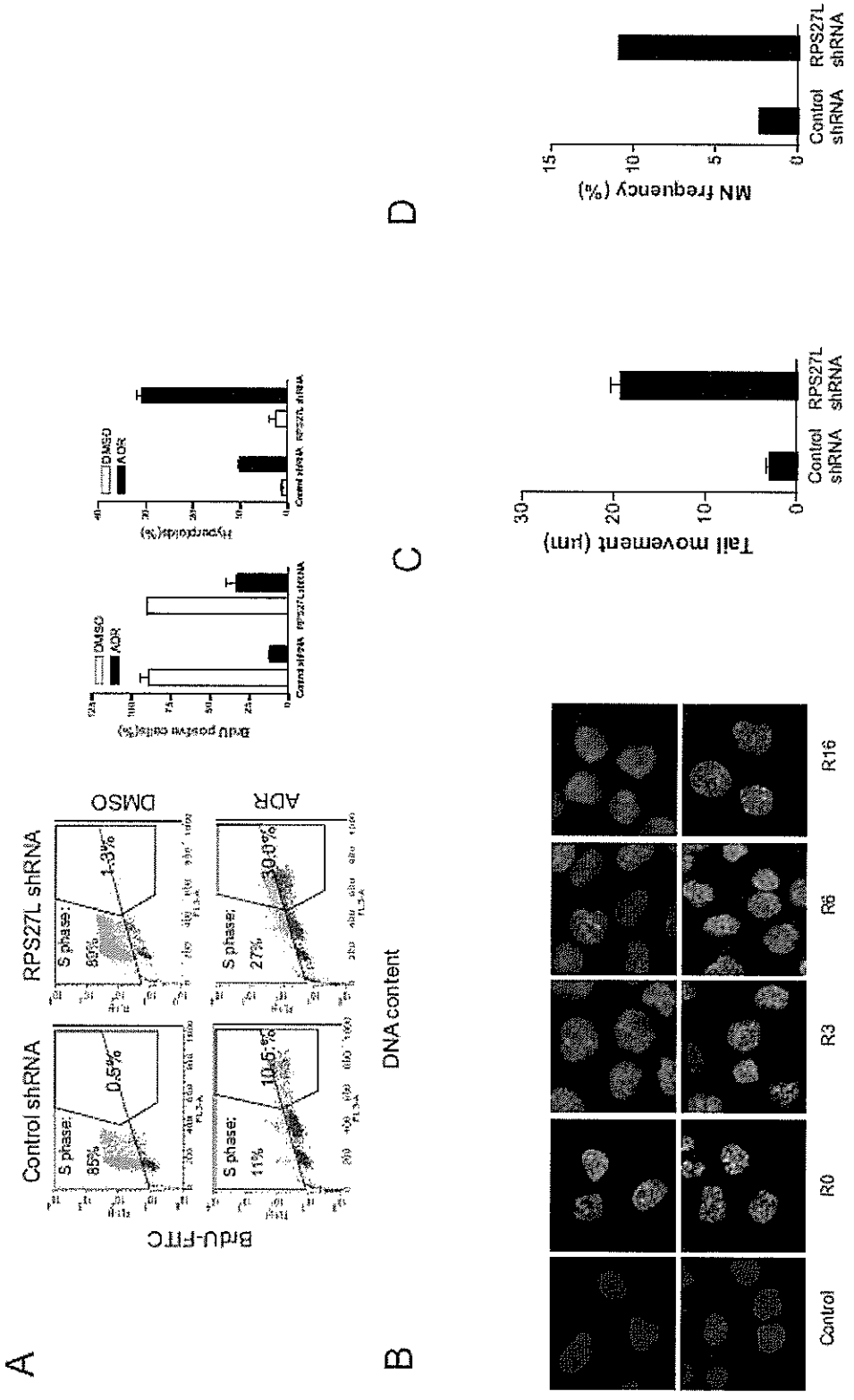

A
Control shRNA
RPS27L shRNA
DMSO
ADR
S phase:
85%
0.5%
11%
10.5%
69%
1.3%
27%
30.8%
BrdU-FITC
DNA content
BrdU positive cells(%)
DMSO
ADR
Hypodiploids(%)
B
Control shRNA
RPS27L shRNA
Control
R0
R3
R6
R16
C
Tail movement (μm)
Control shRNA
RPS27L shRNA
D
MN frequency (%)
Control shRNA
RPS27L shRNA

FIG. 6

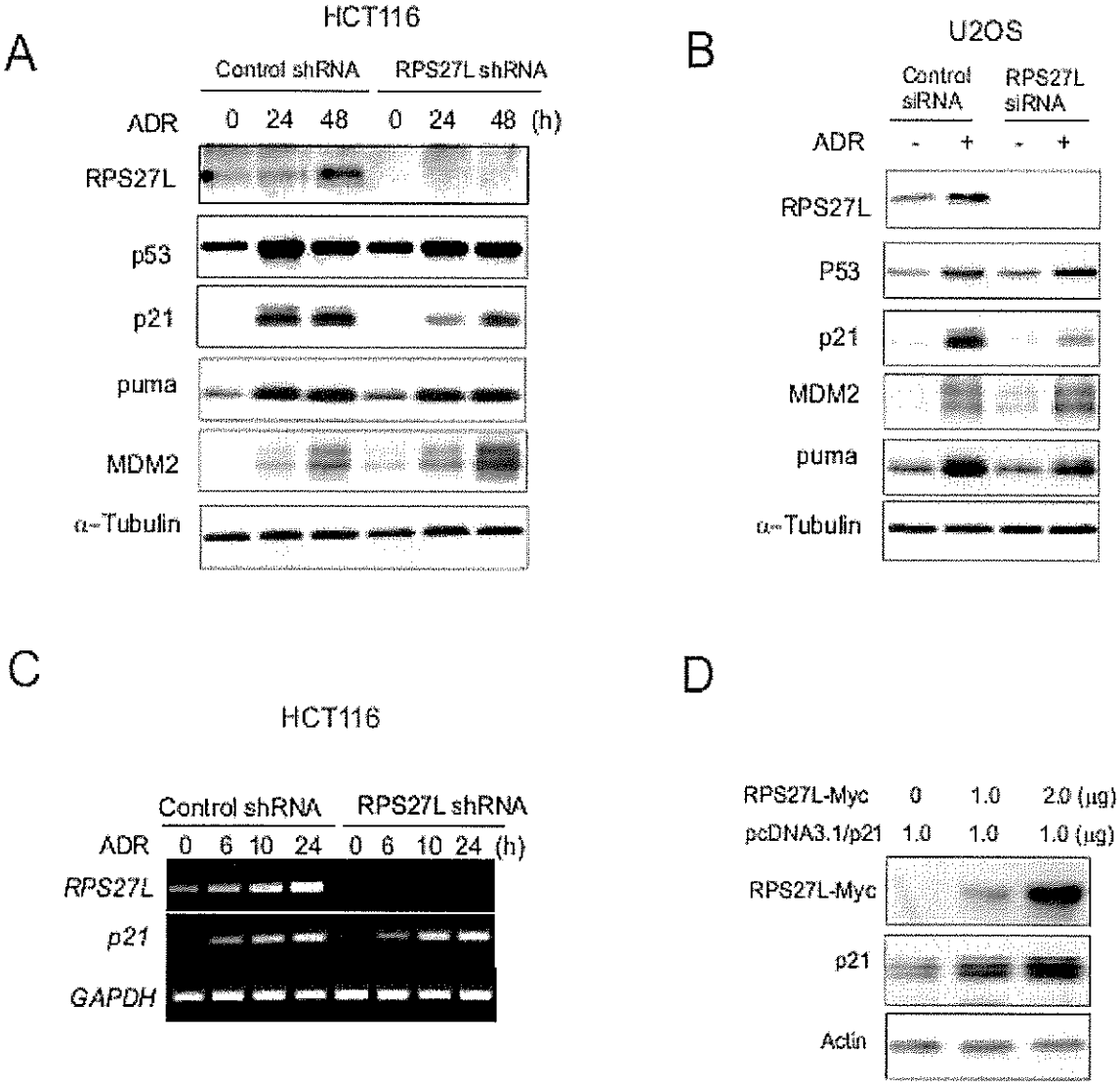
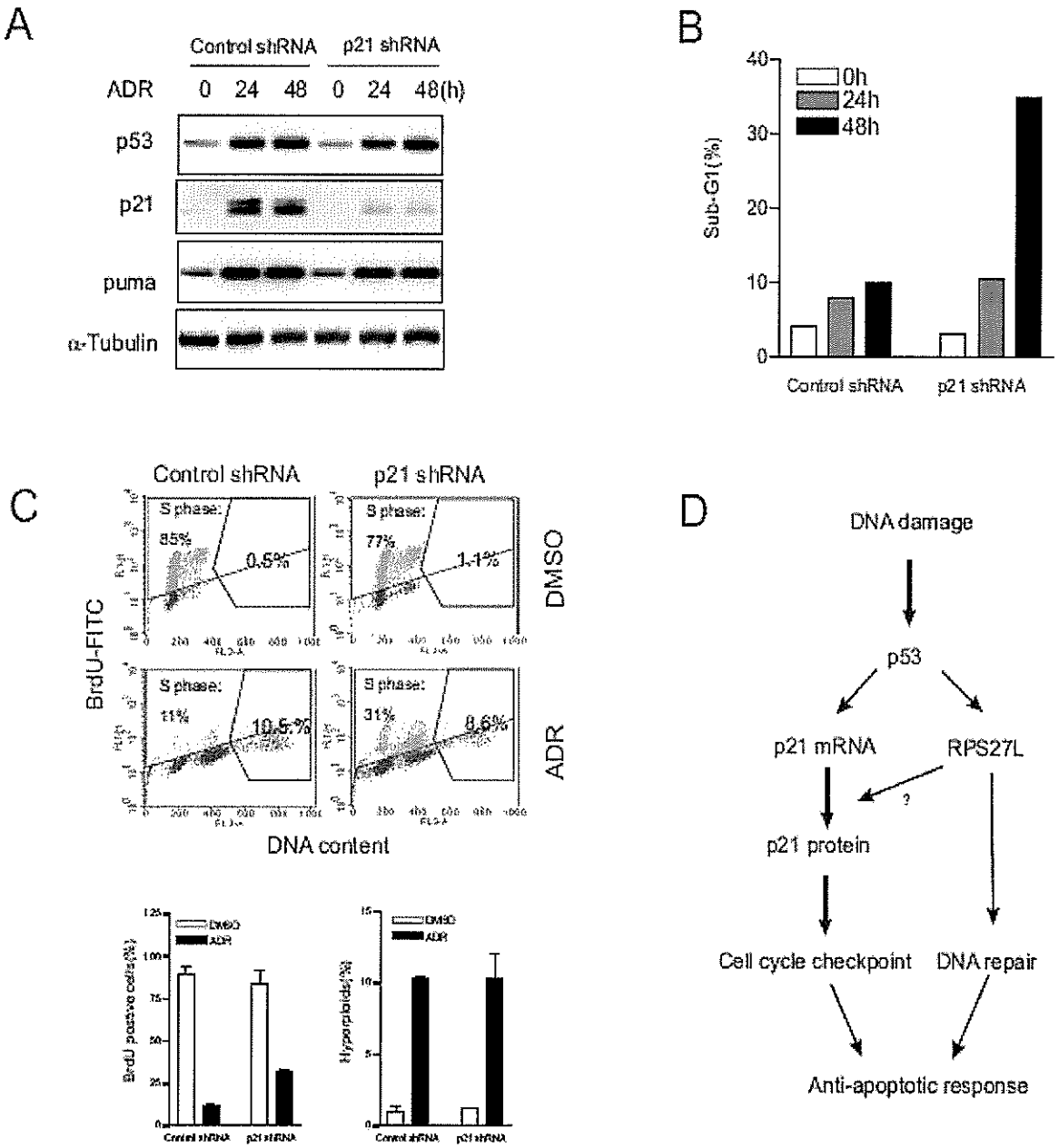

A
HCT116
Control shRNA
RPS27L shRNA
ADR
0 24 48 0 24 48 (h)
RPS27L
p53
p21
puma
MDM2
α-Tubulin
B
U2OS
Control siRNA
RPS27L siRNA
ADR
- + - +
RPS27L
P53
p21
MDM2
puma
α-Tubulin
C
HCT116
Control shRNA
RPS27L shRNA
ADR
0 6 10 24 0 6 10 24 (h)
RPS27L
p21
GAPDH
D
RPS27L-Myc 0 1.0 2.0 (μg)
pcDNA3.1/p21 1.0 1.0 1.0 (μg)
RPS27L-Myc
p21
Actin

FIG. 7


A
Control shRNA
p21 shRNA
ADR 0 24 48 0 24 48(h)
p53
p21
puma
α-Tubulin
B
Sub-G1(%)
0h
24h
48h
Control shRNA
p21 shRNA
C
Control shRNA
p21 shRNA
DMSO
ADR
BrdU-FITC
S phase: 85%
0.5%
S phase: 77%
1.1%
S phase: 11%
10.5%
S phase: 31%
0.6%
DNA content
BrdU positive cells(%)
Hyperploidy(%)
D
DNA damage
p53
p21 mRNA
RPS27L
?
p21 protein
Cell cycle checkpoint
DNA repair
Anti-apoptotic response