Figure S1

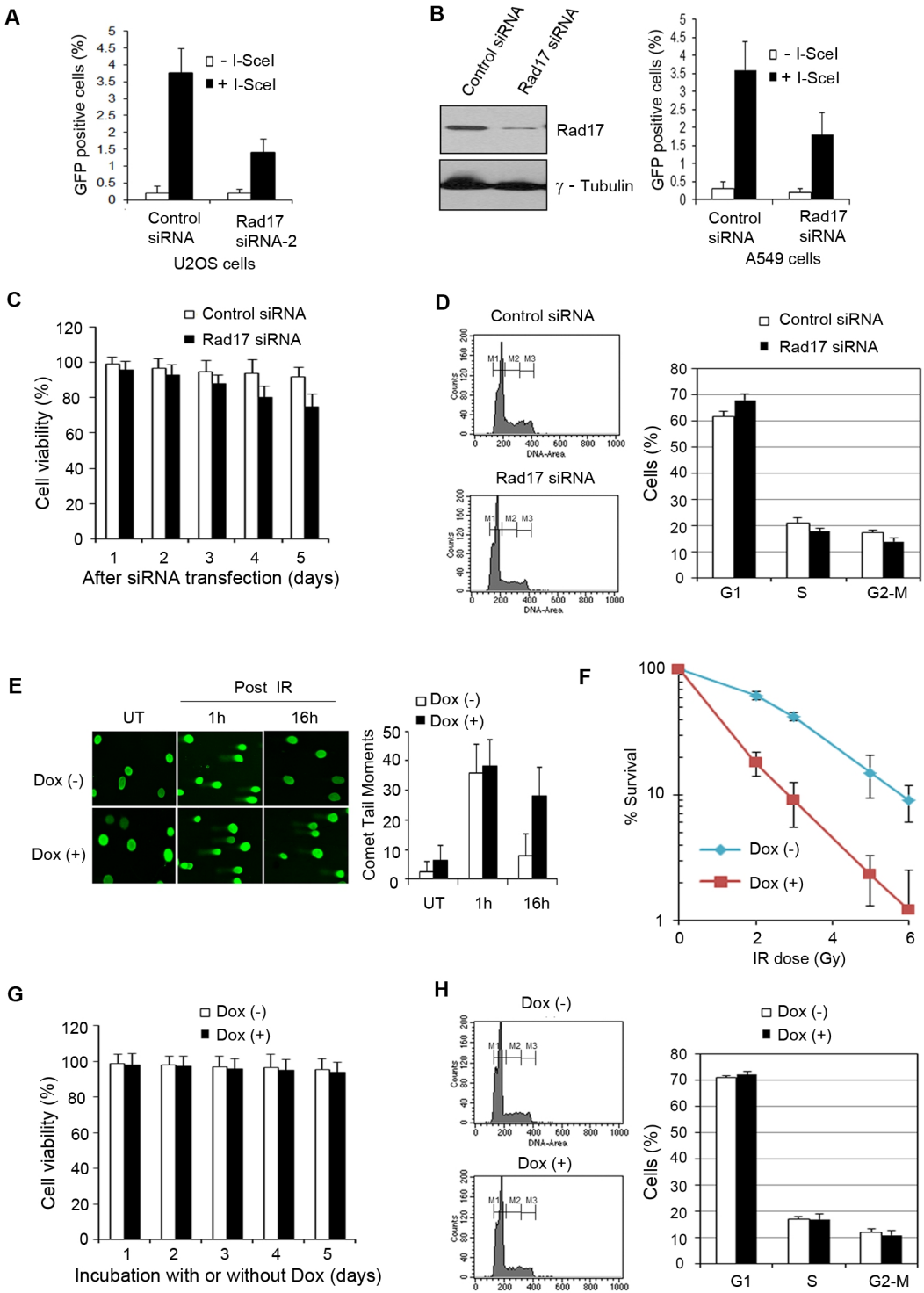
A
GFP positive cells (%)
- I-SceI
+ I-SceI
Control siRNA
Rad17 siRNA-2
U2OS cells
B
Control siRNA
Rad17 siRNA
Rad17
γ - Tubulin
GFP positive cells (%)
- I-SceI
+ I-SceI
Control siRNA
Rad17 siRNA
A549 cells
C
Control siRNA
Rad17 siRNA
Cell viability (%)
After siRNA transfection (days)
D
Control siRNA
Rad17 siRNA
DNA-Area
Control siRNA
Rad17 siRNA
Cells (%)
G1
S
G2-M
E
Post IR
UT
1h
16h
Dox (-)
Dox (+)
Dox (-)
Dox (+)
Comet Tail Moments
UT
1h
16h
F
% Survival
Dox (-)
Dox (+)
IR dose (Gy)
G
Dox (-)
Dox (+)
Cell viability (%)
Incubation with or without Dox (days)
H
Dox (-)
Dox (+)
DNA-Area
Dox (-)
Dox (+)
Cells (%)
G1
S
G2-M

Figure S1 Rad17 is essential for HR repair and dispensable for cell viability and cell cycle progression. (**A** and **B**) Rad17 is required for HR repair in human cells. U2OS cells (**A**) or A549 cells (**B**) were transfected with control siRNA or the indicated Rad17 siRNA for two days. HR repair assay was performed as described previously (Pierce *et al*, 1999). (**C**) Rad17 is dispensable for cell viability. U2OS cells were transfected with control siRNA or Rad17 siRNA for the indicated days. Cells were harvested and trypan blue exclusion assay was performed. Cell viability was calculated and plotted. (**D**) Rad17 is not essential for cell cycle progression. U2OS cells were transfected with control siRNA or Rad17 siRNA for two days. Cells were harvested and propidium iodide (PI) staining was performed followed by flow cytometry. (**E**) Rad17 is required for DNA damage repair demonstrated by comet assay. Stable inducible Rad17 shRNA knockdown cells (U2OS) treated with either Dox or DMSO for two days were either untreated or exposed to 10 Gy of IR. After 1 hour or 16 hours, cells were harvested for single cell electrophoresis. The level of DNA break repair was visualized by the length of comet tail. Comet tail moment was analyzed using CometScore software (Tritek). (**F**) Rad17 is essential for cell survival following IR treatment. Stable inducible Rad17 shRNA knockdown cells (U2OS) treated with either Dox or DMSO were either left untreated or exposed to various indicated dose of IR. The cell survival rate was determined by comparing the number of colonies formed by the treated and untreated samples.

(**G**) Stable inducible Rad17 knockdown cells (U2OS) were either treated with Dox or DMSO for the indicated days. Cells were harvested and trypan blue exclusion assay was performed. Cell viability was calculated and plotted. (**H**) Stable inducible Rad17 knockdown cells (U2OS) were either treated with Dox or DMSO for two days. Cells were harvested and PI staining was performed followed by flow cytometry. Error bars present mean ± SD (n=3) in the figure. Dox, doxycycline; IR, ionizing radiation.