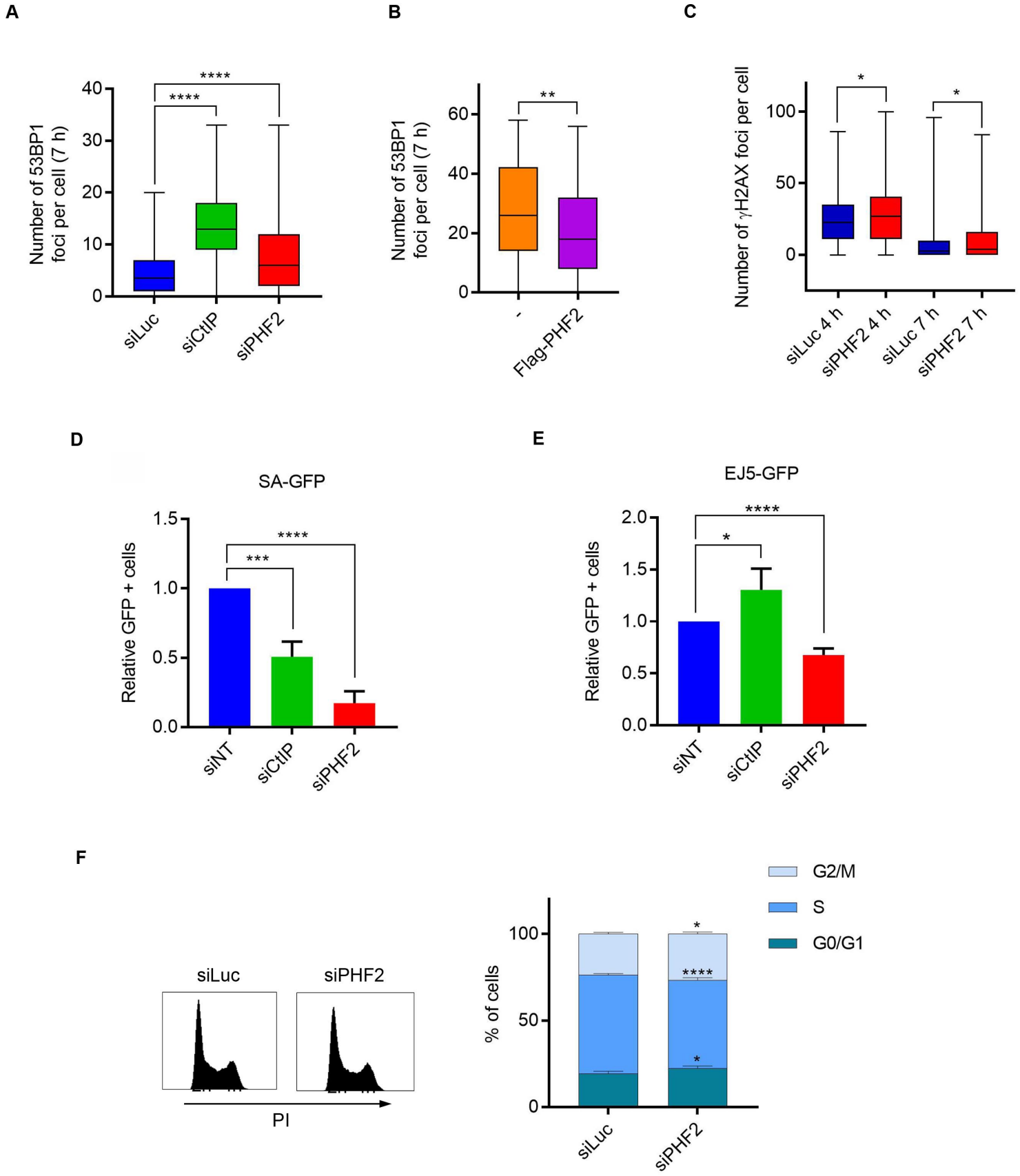
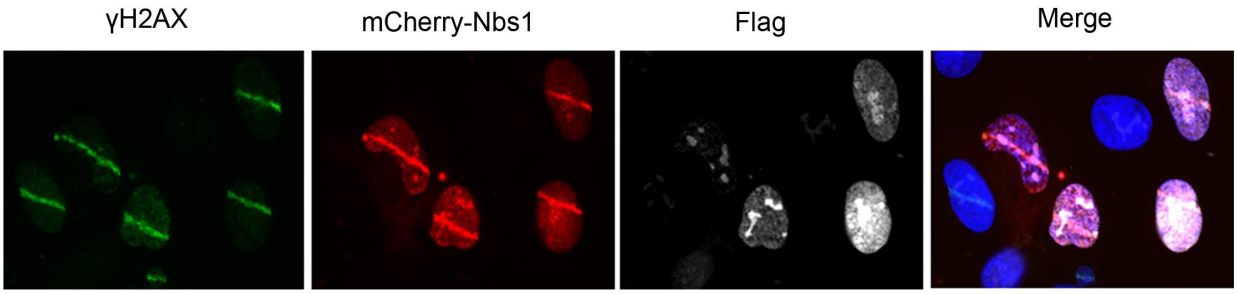

A
Number of 53BP1 foci per cell (7 h)
siLuc
siCtIP
siPHF2
B
Number of 53BP1 foci per cell (7 h)
Flag-PHF2
C
Number of γH2AX foci per cell
siLuc 4 h
siPHF2 4 h
siLuc 7 h
siPHF2 7 h
D
SA-GFP
Relative GFP + cells
siNT
siCtIP
siPHF2
E
EJ5-GFP
Relative GFP + cells
siNT
siCtIP
siPHF2
F
siLuc
siPHF2
PI
G2/M
S
G0/G1
% of cells
siLuc
siPHF2

Figure S1

A



B

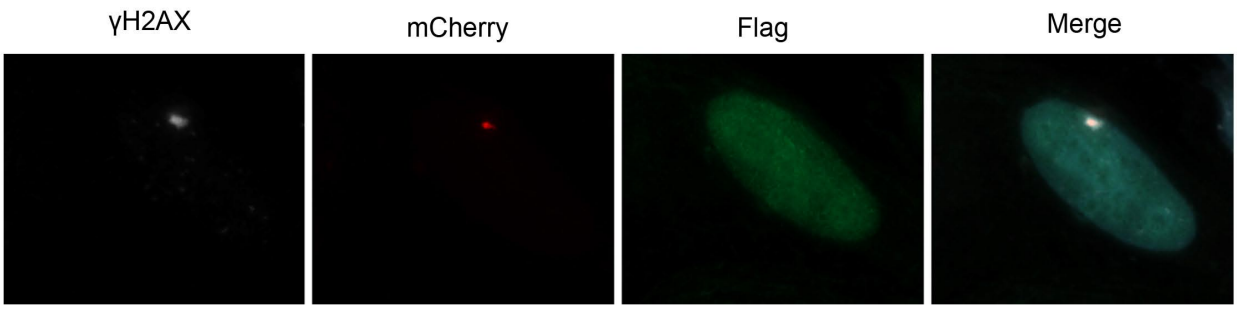


Figure S2

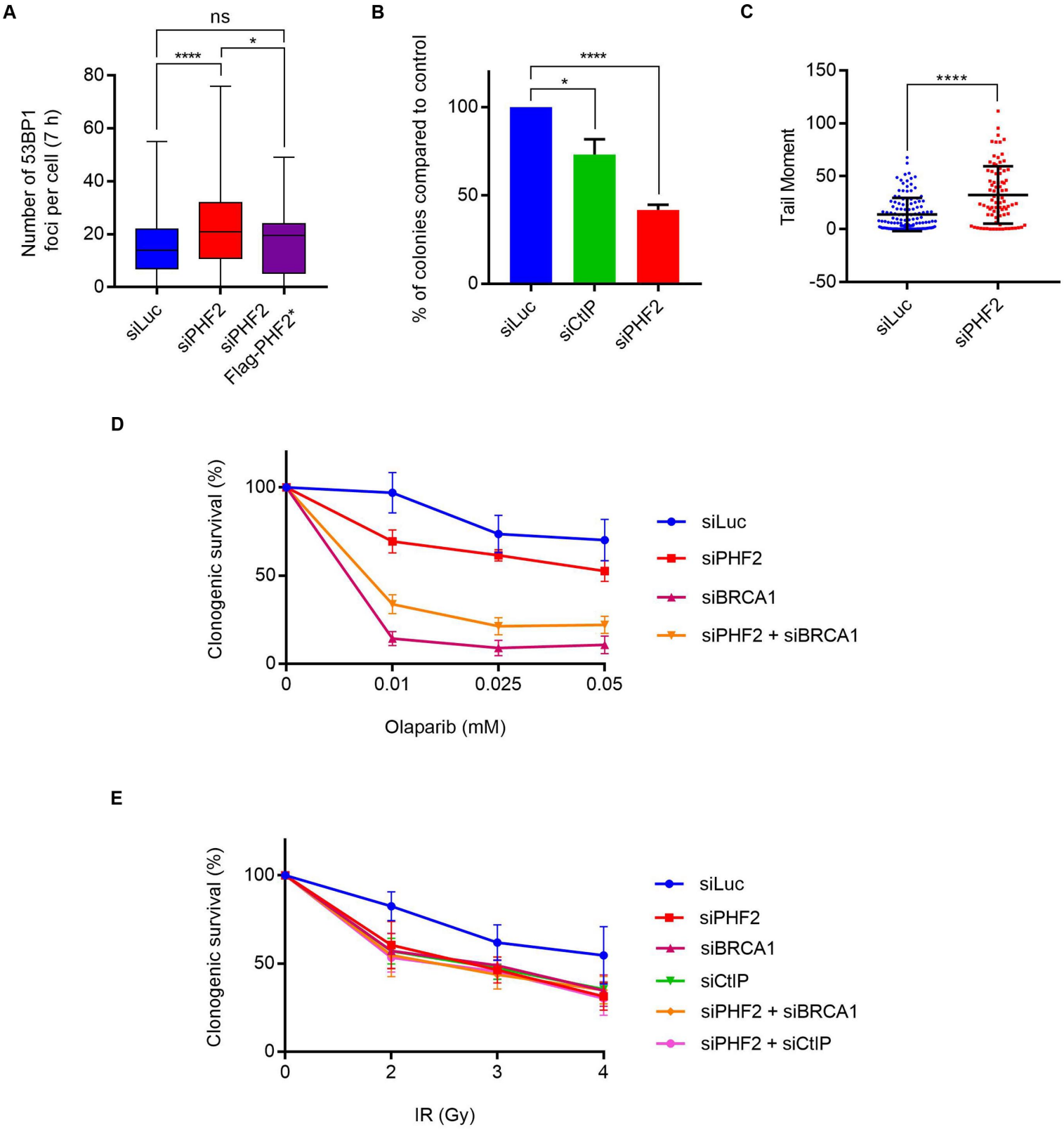

A
ns
****
*
Number of 53BP1 foci per cell (7 h)
80
60
40
20
0
siLuc
siPHF2
siPHF2 Flag-PHF2*
B
****
*
% of colonies compared to control
100
50
0
siLuc
siCtIP
siPHF2
C
****
Tail Moment
150
100
50
0
-50
siLuc
siPHF2
D
Clonogenic survival (%)
100
50
0
0
0.01
0.025
0.05
Olaparib (mM)
siLuc
siPHF2
siBRCA1
siPHF2 + siBRCA1
E
Clonogenic survival (%)
100
50
0
0
2
3
4
IR (Gy)
siLuc
siPHF2
siBRCA1
siCtIP
siPHF2 + siBRCA1
siPHF2 + siCtIP

Figure S3

Alonso de Vega et al., Supplementary Figure Legends

Figure S1. (**A**) U2OS cells were depleted for Luciferase (Luc), CtIP or PHF2 by siRNA. After 48 h, cells were treated with IR (10 Gy) and fixed after 7 hours. 53BP1 focus formation was analysed by immunofluorescence. Shown is the quantification of the number of 53BP1 foci per cell of three independent experiments with at least 100 cells each. (**B**) U2OS cells were transfected with Flag-PHF2, treated with 3 Gy IR, fixed 7 hours later and subsequently analysed by immunofluorescence for Flag and 53BP1. 53BP1 focus formation was analysed as in (A). (**C**) U2OS cells were depleted for Luciferase (Luc) or PHF2 by siRNA. After 48 h, cells were treated with IR (5 Gy) and fixed after 4 and 7 hours. γH2AX focus formation was analysed by immunofluorescence. Shown is the quantification of the number of γH2AX foci per cell of three independent experiments with at least 100 cells each. (**D**) U2OS cells carrying the SA-GFP reporter construct were depleted of CtIP, PHF2 or control (NT). After 48 hours, GFP fluorescence was analysed by FACS. Presented is the relative fluorescence as compared to the control cells, of three independent experiments. (**E**) U2OS cells carrying the EJ5-GFP reporter construct were depleted of CtIP, PHF2 or control (NT). After 48 hours, GFP fluorescence was analysed by FACS. Presented is the relative fluorescence as compared to the control cells, of three independent experiments. (**F**) U2OS cells were downregulated for Luc or PHF2 by siRNA. 48 hours later cells were fixed, stained with PI and analysed by flow cytometry. Quantification shows the percentage of cells in G1, S and G2/M phases of three independent experiments.

Figure S2. (**A**) U2OS cells transfected with mCherry-Nbs1 and Flag-PHF2 were laser-irradiated and fixed, followed by immunofluorescence analysis for γH2AX and Flag. (**B**) U2OS 2-6-3 cells expressing inducible FokI-mCherry-LacR were transfected with Flag-PHF2 and treated to induce FokI expression. After fixation, cells were analysed by immunofluorescence using the indicated antibodies.

Figure S3. (**A**) U2OS cells were depleted for PHF2 and transfected with siRNA-resistant Flag-PHF2 (Flag-PHF2*) the day after. One day later, cells were treated with IR (3 Gy) and fixed for IF after 7 hours. 53BP1 focus formation was analysed by

immunofluorescence. Shown is the quantification of the number of 53BP1 foci per cell of three independent experiments with each at least 100 cells.

(**B**) U2OS cells were depleted for Luc, CtIP or PHF2 by siRNA. Equal numbers of cells were seeded and incubated for 10 days for colonies to form. Bar graph shows the number of colonies compared to control depleted cells from three independent experiments. (**C**) HeLa cells, depleted for PHF2 by siRNA, were subjected to comet assay analysis. Depicted is the tail moment of three independent experiments. (**D**) Clonogenic survival assays of HeLa cells that were depleted for Luc, PHF2, BRCA1 or PHF2+BRCA1 by siRNA and incubated with the indicated concentrations of Olaparib. Shown is the relative survival as compared to the undamaged control. Error bars represent the SEM of three individual experiments. (**E**) Clonogenic survival assays of HeLa cells that were depleted for Luc, PHF2, BRCA1, CtIP, PHF2+BRCA1 or PHF2+CtIP by siRNA and treated with 2, 3 or 4 Gy IR. Shown is the relative survival as compared to the undamaged control. Error bars represent the SEM of three individual experiments.