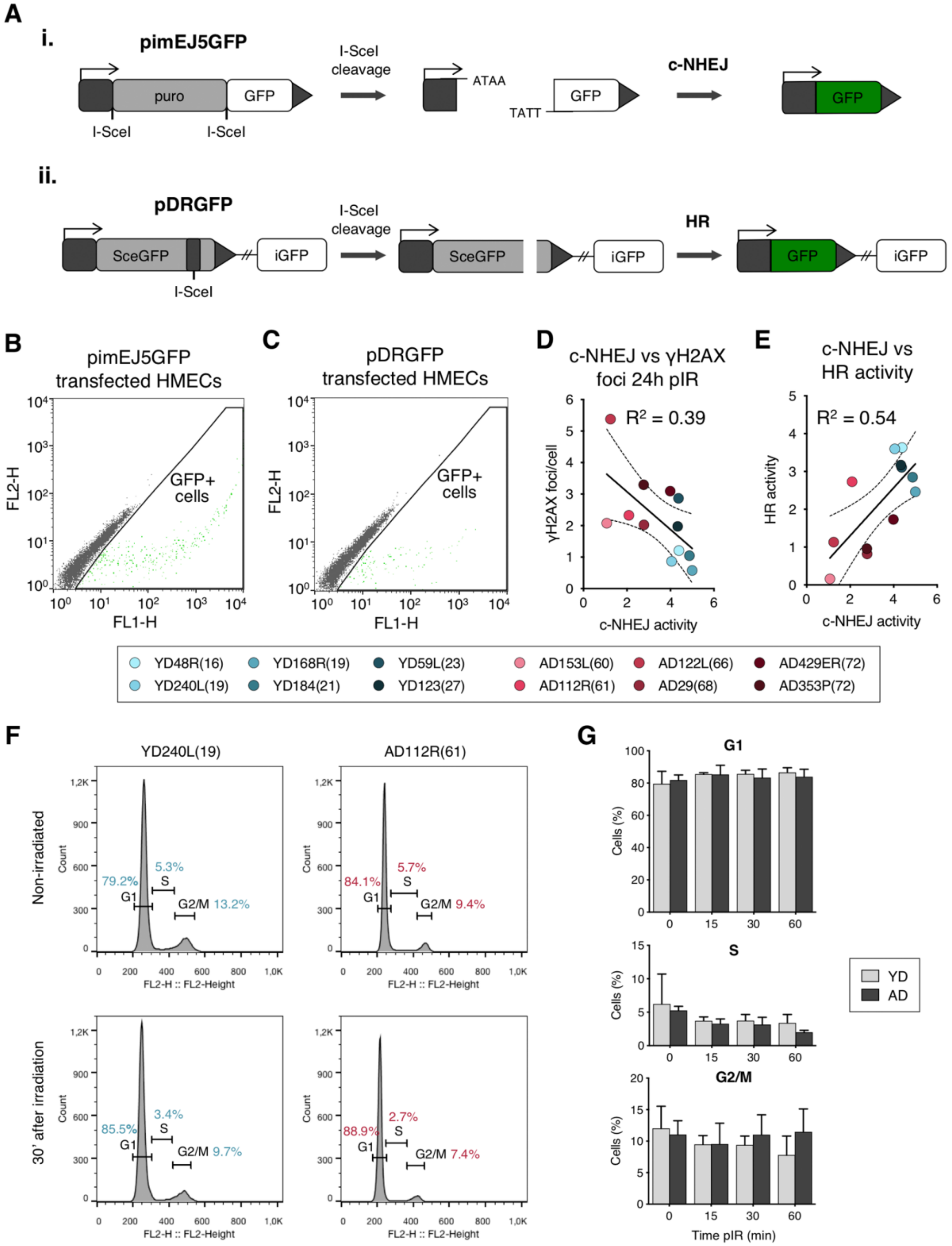
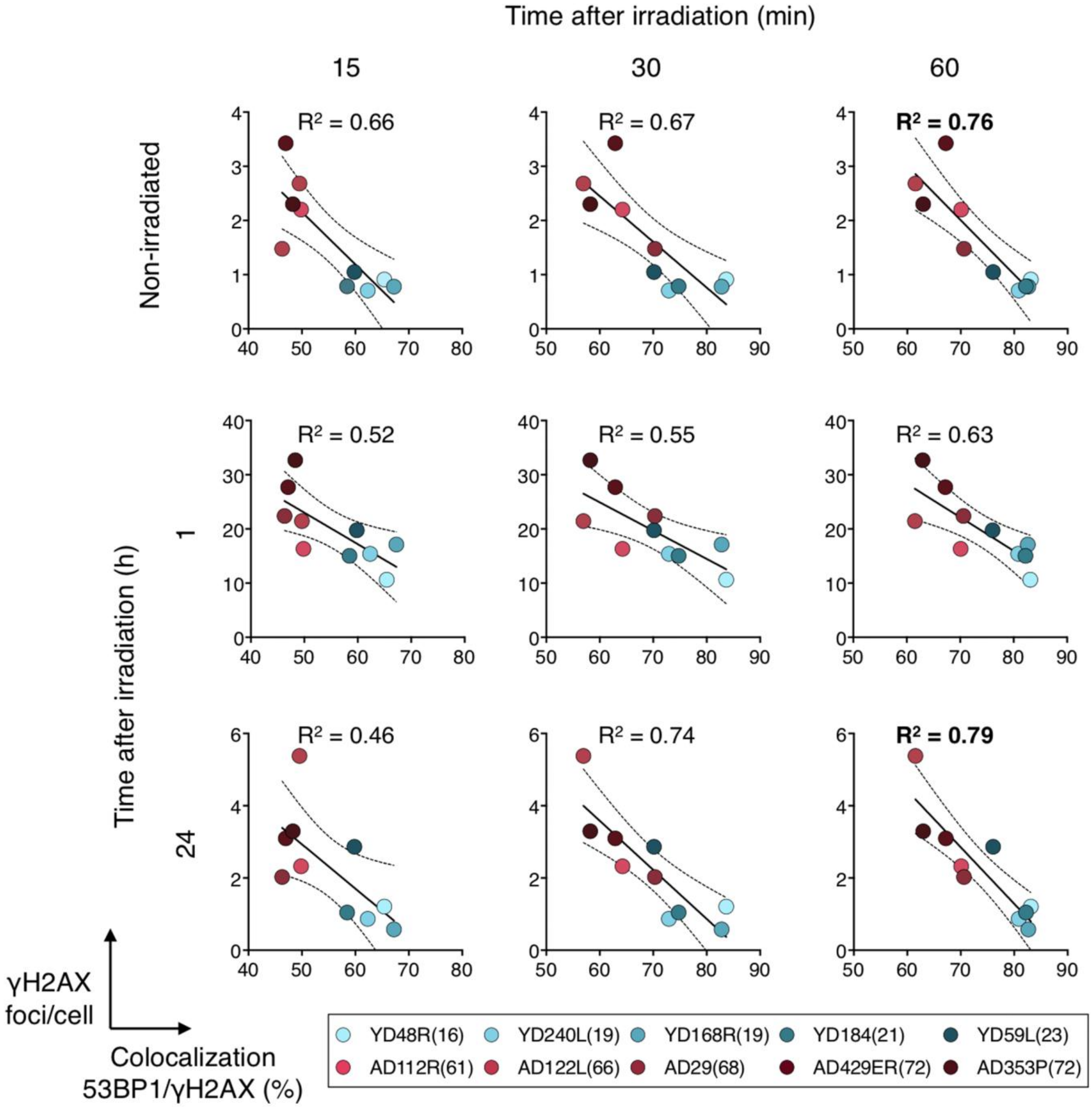
# SUPPLEMENTARY FIGURES



**Supplementary Figure 1. Reporter plasmids assays and cell cycle analysis with flow cytometry.** (**A**) Structure of the reporter plasmids for the analysis of (i) c-NHEJ and (ii) HR efficiency. (**B**, **C**) Representative flow cytometry plots of the frequency of GFP-positive cells after co-transfection with the c-NHEJ reporter plasmid pimEJ5GFP (**B**) or the HR reporter plasmid pDRGFP (**C**) and the I-SceI expressing plasmids. (**D**, **E**) Correlation between c-NHEJ activity and the residual number of γH2AX foci (**D**) or between c-NHEJ and HR pathways' activity

(**E**) in HMECs from YDs and ADs. Best-fit line, 95% confidence bands (dotted lines) and Pearson's correlation coefficient ($R^2$) are indicated ($p < .05$). (**F**) Representative diagrams of cell cycle distribution for YDs and ADs before and at 30 min post-irradiation (15 J/m$^2$, UVC, BrdU sensitized cells). (**G**) Frequency of cells at G1, S and G2/M stages in non-irradiated HMECs and at 15, 30 and 60 min after irradiation (15 J/m$^2$, UVC, BrdU sensitized cells). Mean values and SD from three young donors (YD240L(19), YD168R(19) and YD184(21)) and three ADs (AD112R(61), AD122L(66) and AD429ER(72)) are shown.



**Supplementary Figure 2. Negative correlations between 53BP1/γH2AX foci colocalization and the number of DSBs scored as γH2AX foci in HMECs from YDs and ADs.** 53BP1/γH2AX foci colocalization was evaluated at 15, 30 and 60 min pIR. γH2AX foci were scored before irradiation and 1 h and 24 h pIR. Best-fit line, 95% confidence bands (dotted lines) and Pearson's correlation coefficient ($R^2$) are indicated ($p < .05$). Most significant values are highlighted in bold letters.