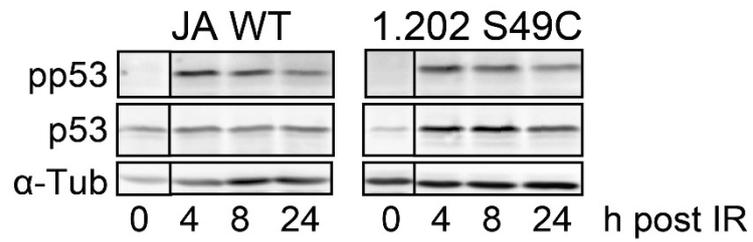
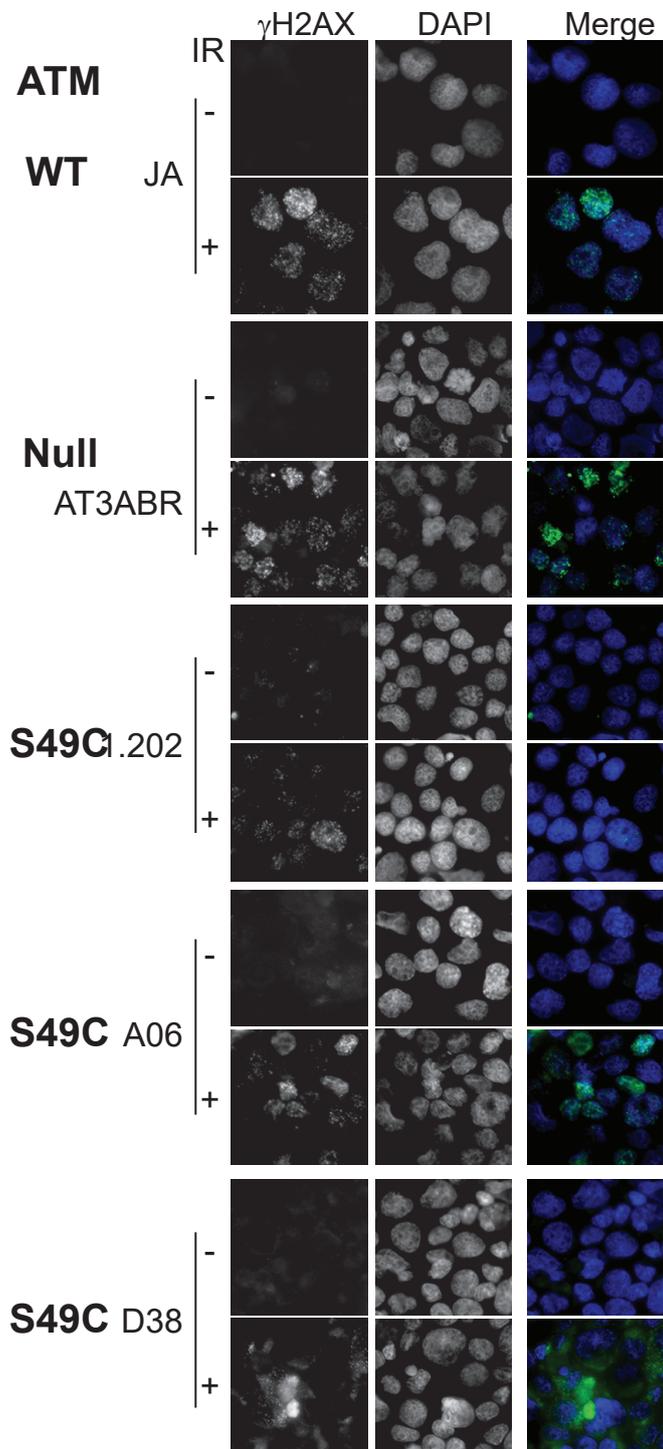
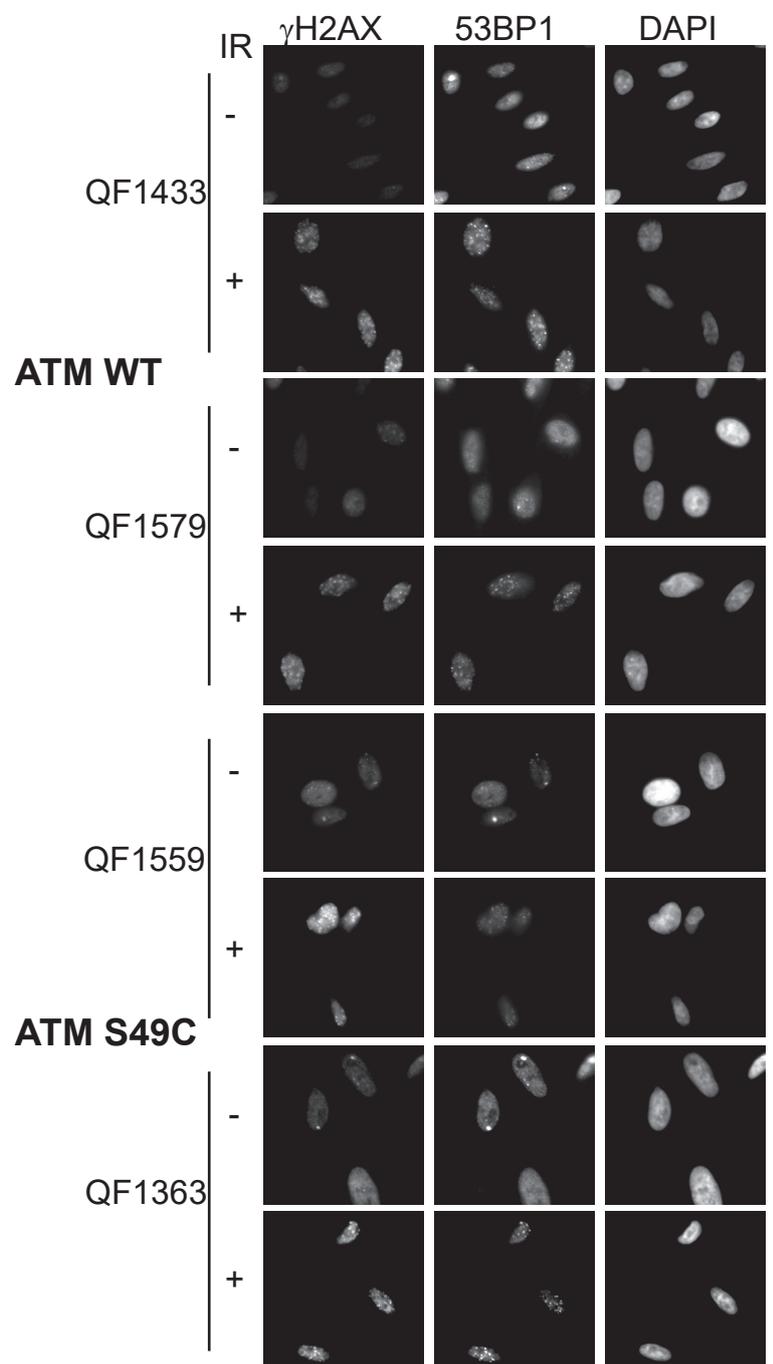


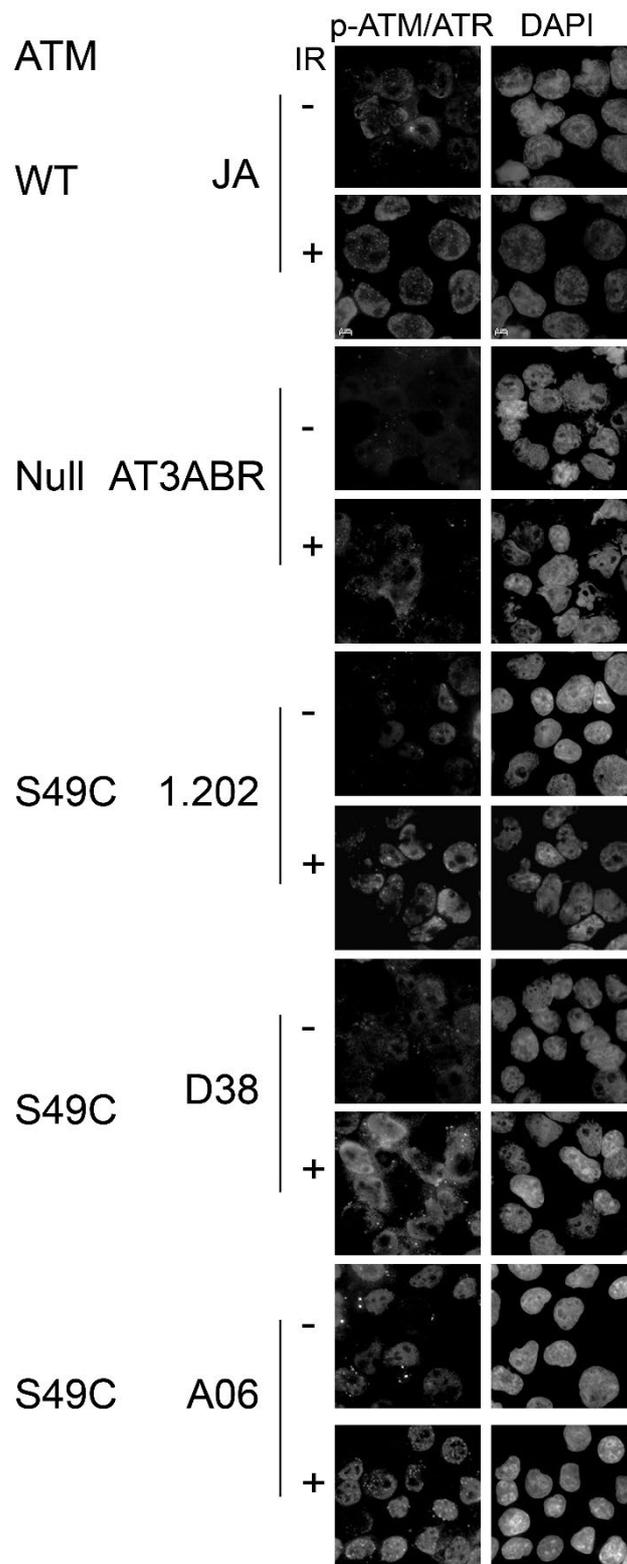
Atkinson et al., Supplementary Materials



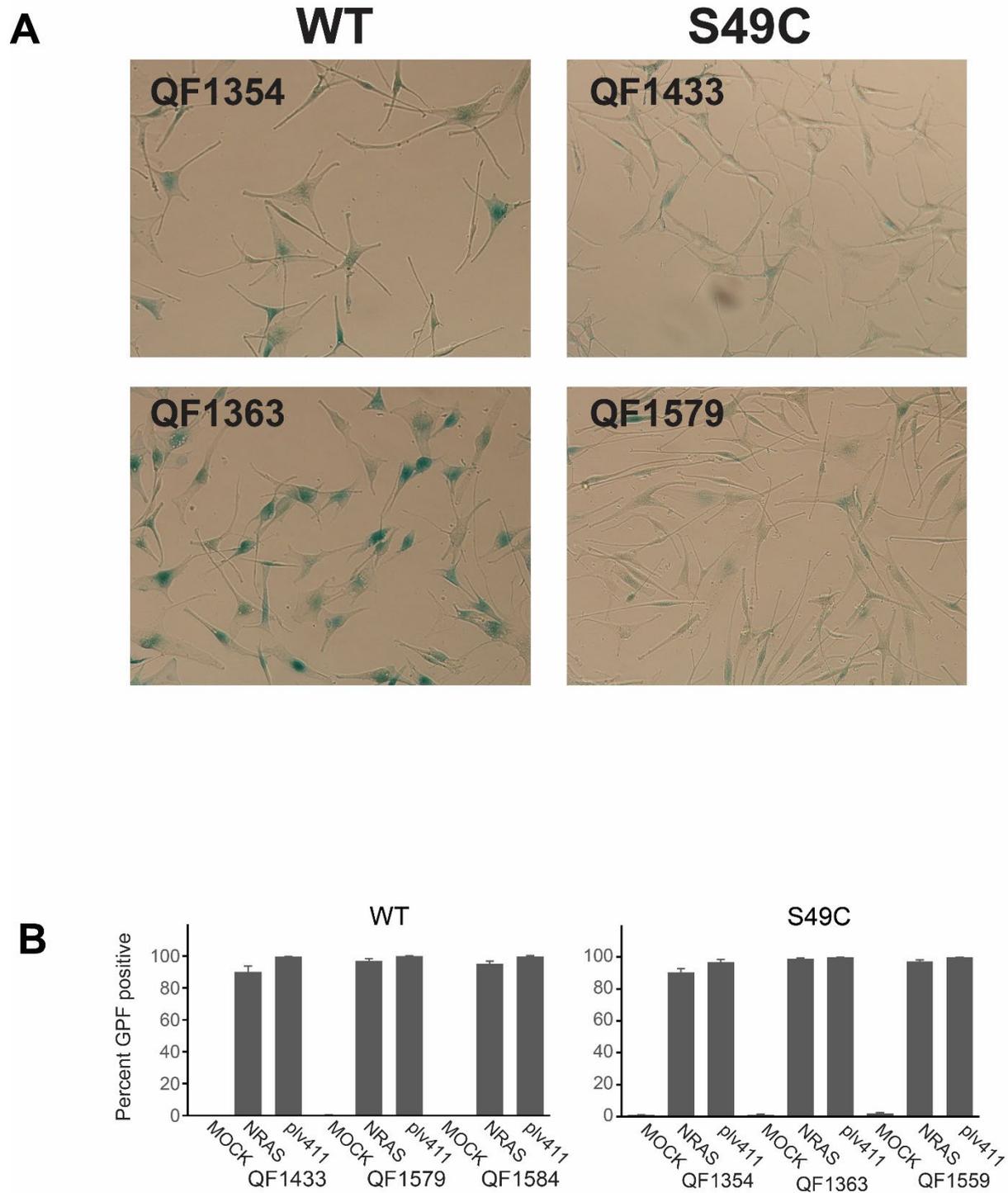
Supplementary Figure S1: The indicated LCLs were irradiated with 6 Gy IR then harvested at the indicated times. Whole cell lysates were immunoblotted for pp53, total p53 and α -tubulin (α -Tub) as a loading control.

A**B**

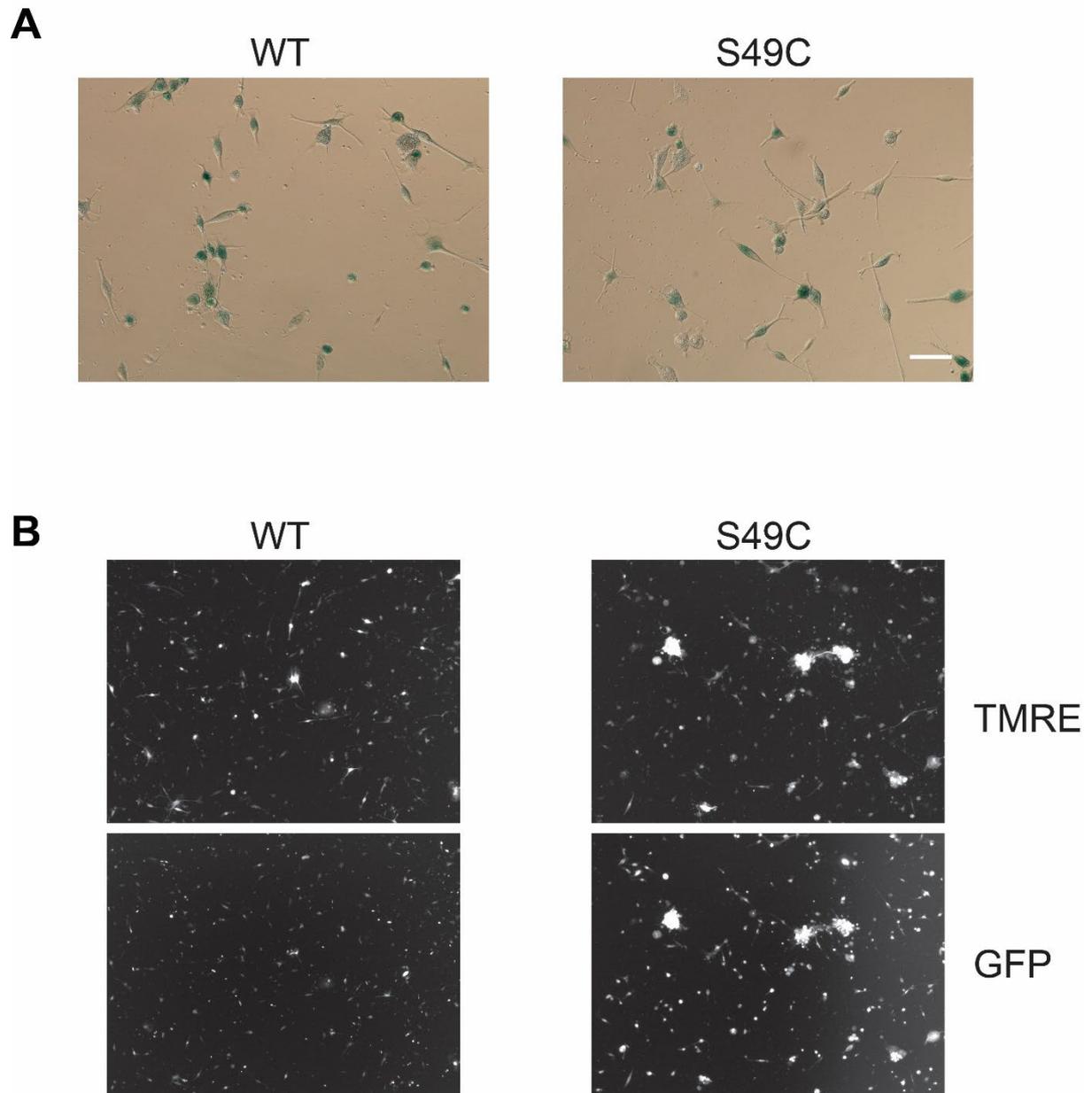
Supplementary Figure S2: Immunofluorescence staining of LCL (A) and melanoblast (B) cell lines. Cells were fixed 2 h with or without irradiation (6 Gy), and probed for γ H2AX and 53BP1. DAPI stained the DNA.



Supplementary Figure S3: Immunofluorescence staining of LCL lines. Cells were fixed 2 h with or without irradiation (6 Gy), and probed with the pATM/ATR substrate antibody, and DAPI for the DNA.



Supplementary Figure 4: A) Images of the indicated melanoblast lines 2 weeks after transduction with empty vector and stained for SA- β -Gal. B) High content image analysis of melanoblasts transduced with either empty vector (pLV411), NRAS Q61K or mock transduced for 2 weeks. The percentage of GFP expressing cells are shown. This is the average and SD counting 100 - 3400 cells per well of 6 wells.



Supplementary Figure S5: A) Images of the indicated melanoblast lines 2 weeks after transduction with empty vector and stained for SA- β -Gal. B) Fluorescence imaging of the same cells as in Figure 5D but for GFP to identify the transduced cells and TMRE fluorescence for mitochondrial viability.

Supplementary Table S1: ATM Genotype of LCLs

LCL	ATM	Mutation	State	Protein
JA	WT		hom	WT
AT3ABR	ATM null	A8266T	het/-	K2756X
Col 1.201*	WT		hom	WT
Col 1.202*	Variant	C146G	het	S49C
A06	Variant	C146G	het	S49C
D38	Variant	C146G	het	S49C

* These LCL lines were derived from unaffected relatives of the proband of the melanoma and astrocytoma affected family [15] and genotyped as described in the Materials and Methods.

Supplementary Table S2: ATM Genotype of melanoblast lines used.

QF #	MC1R	S49C
1433	WT	S/S
1579	WT	S/S
1584	WT	S/S
1363	D84E +/-	S/C
1354	R163Q +/-	S/C
1559	WT	S/C