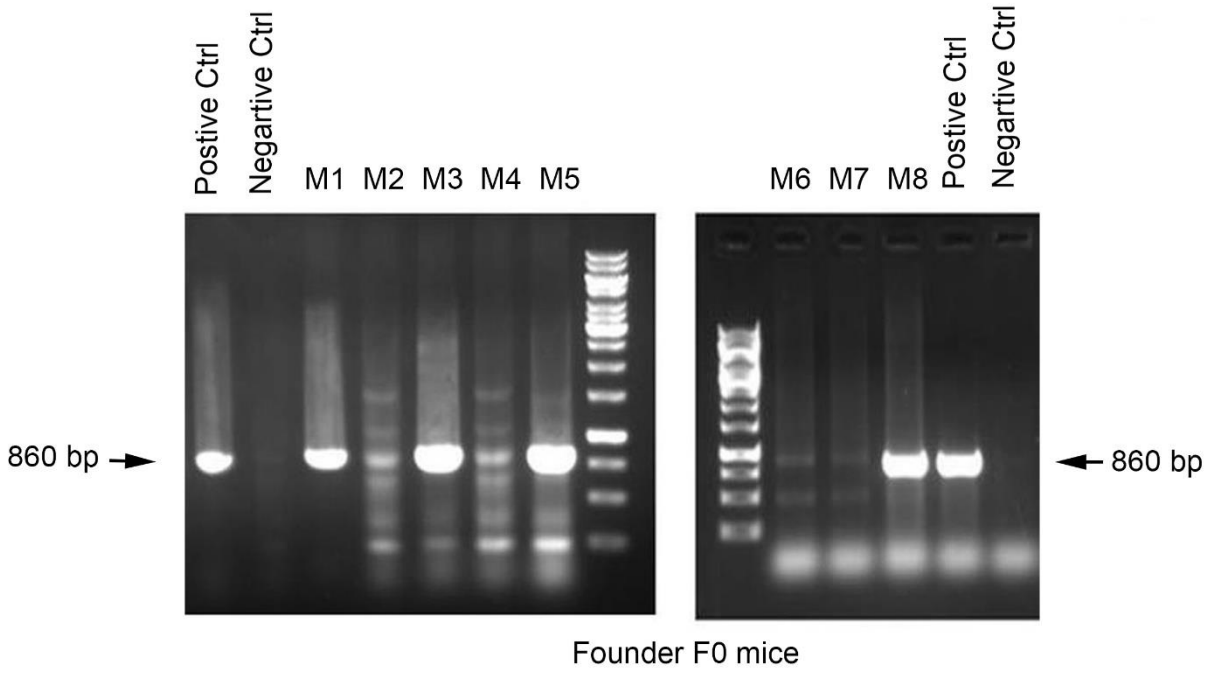
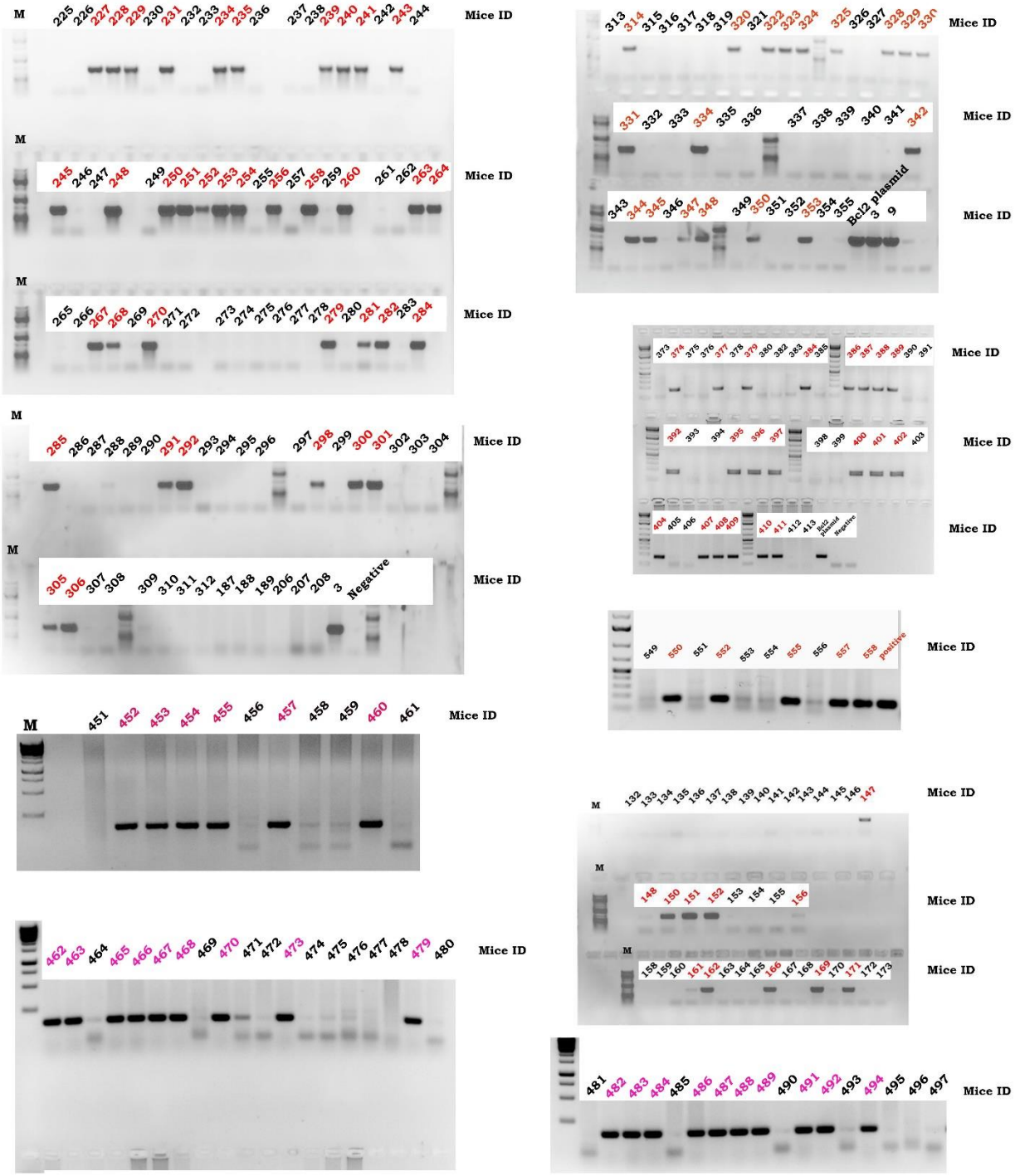
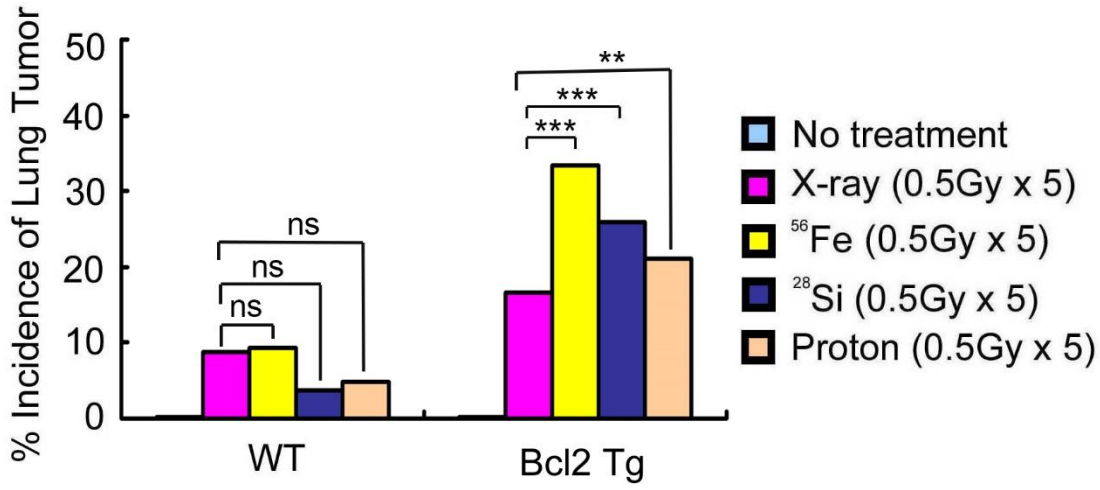
Supplemental Data



Supplementary Figure 1. Identification of founder (F0) Bcl2 transgenic mice. Four positive F0 Bcl2 transgenic mice (M1, M3, M5 and M8) were identified by PCR with tail DNA using a forward mcc10-Bcl2 vector primer and a reverse Bcl2 cDNA primer as described in Methods.



Supplementary Figure 2. Genotyping of Bcl2 transgenic mice. Representative genotyping data by PCR during breeding are shown.



Supplementary Figure 3. High-LET IR induced higher incidence of lung cancer than low-LET X-ray IR in lung-targeting Bcl2 transgenic mice. Wild type C57BL/6 mice and lung-targeting Bcl2 transgenic mice were exposed to 0.5 Gy of X-ray, ^{56}Fe, ^{28}Si or proton once a day for 5 days continuously, followed by monitoring lung tumorigenesis for 18 months. Percentage of lung cancer incidence was calculated for all groups. Number of mice (n) for each group is indicated in Table 2, $^{**}P < 0.01$, $^{***}P < 0.001$, ns→ no significance, by 2-tailed *t* test.

Supplementary Table 1. Description of Radiation Quality

Radiation Type	Energy	Dose (Gy)	Dose Rate (Gy/min)
X-ray	320KV	0.5x5	0.5
Iron (^{56}Fe)	600 MeV/u	0.5x5	0.5
Silicon (^{28}Si)	300 MeV/u	0.5x5	0.5
Proton	150 MeV/u	0.5x5	0.5

Supplementary Table 2. Incidence of Lung Tumorigenesis

	Radiation Type	Mouse No. (Lung Tumor / Total, %)	Tumor Diagnosis
Wild type mice	Ctrl	0/30 (0.0%)	NA
	X-ray	3/34 (8.82%)	ADC (3)
	Iron (^{56}Fe)	5/54 (9.26%)	ADC (3); SCC (2)
	Silicon (^{28}Si)	2/53 (3.77%)	ADC (2)
	Proton	2/42 (4.76%)	ADC (2)
Bcl2 transgenic mice	Ctrl	0/30 (0.0%)	NA
	X-ray	5/30 (16.67%)	ADC (5)
	Iron (^{56}Fe)	17/51 (33.33%)	ADC (14); SCC (3)
	Silicon (^{28}Si)	13/50 (26.0%)	ADC (13)
	Proton	11/52 (21.15%)	ADC (11)

NA: Not Applicable
ADC: Adenocarcinoma
SCC: Squamous Cell Carcinoma

Figure 1b

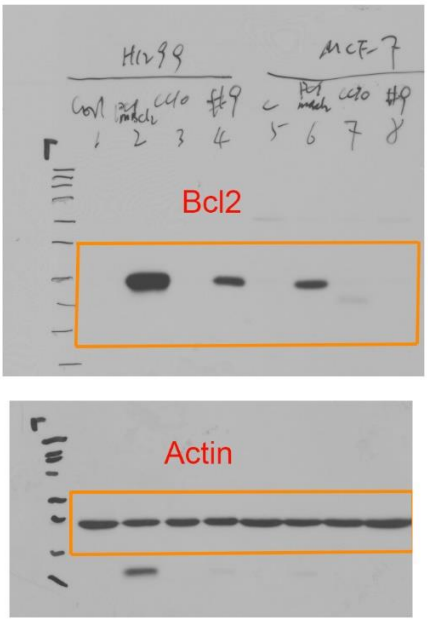


Figure 2a

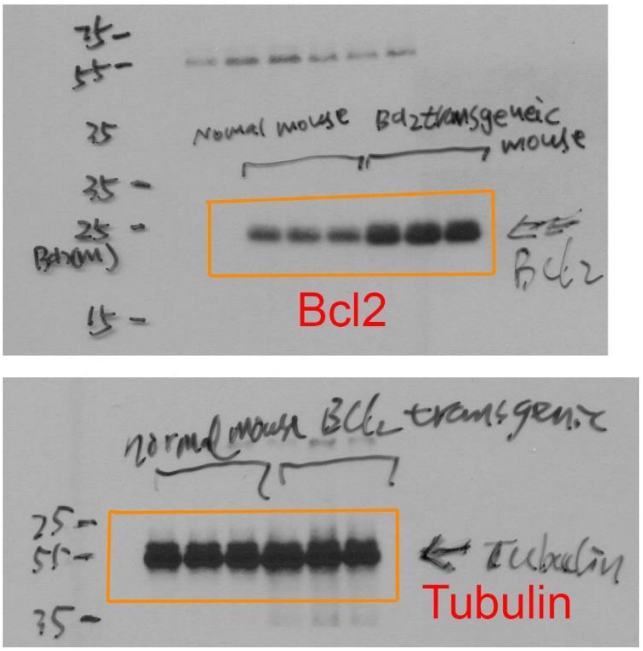
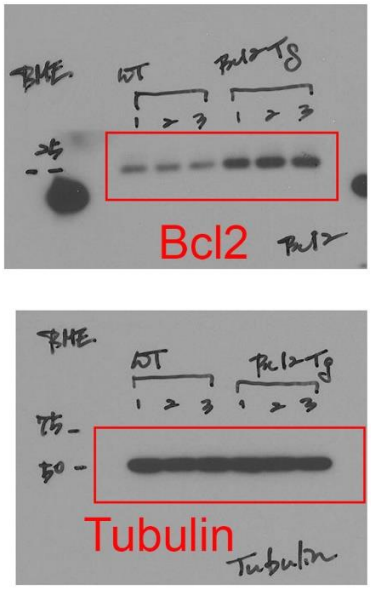


Figure 3a



Supplementary Figure 4. (Related to Figure 1b, 2a and 3a)

Original unedited Western blots