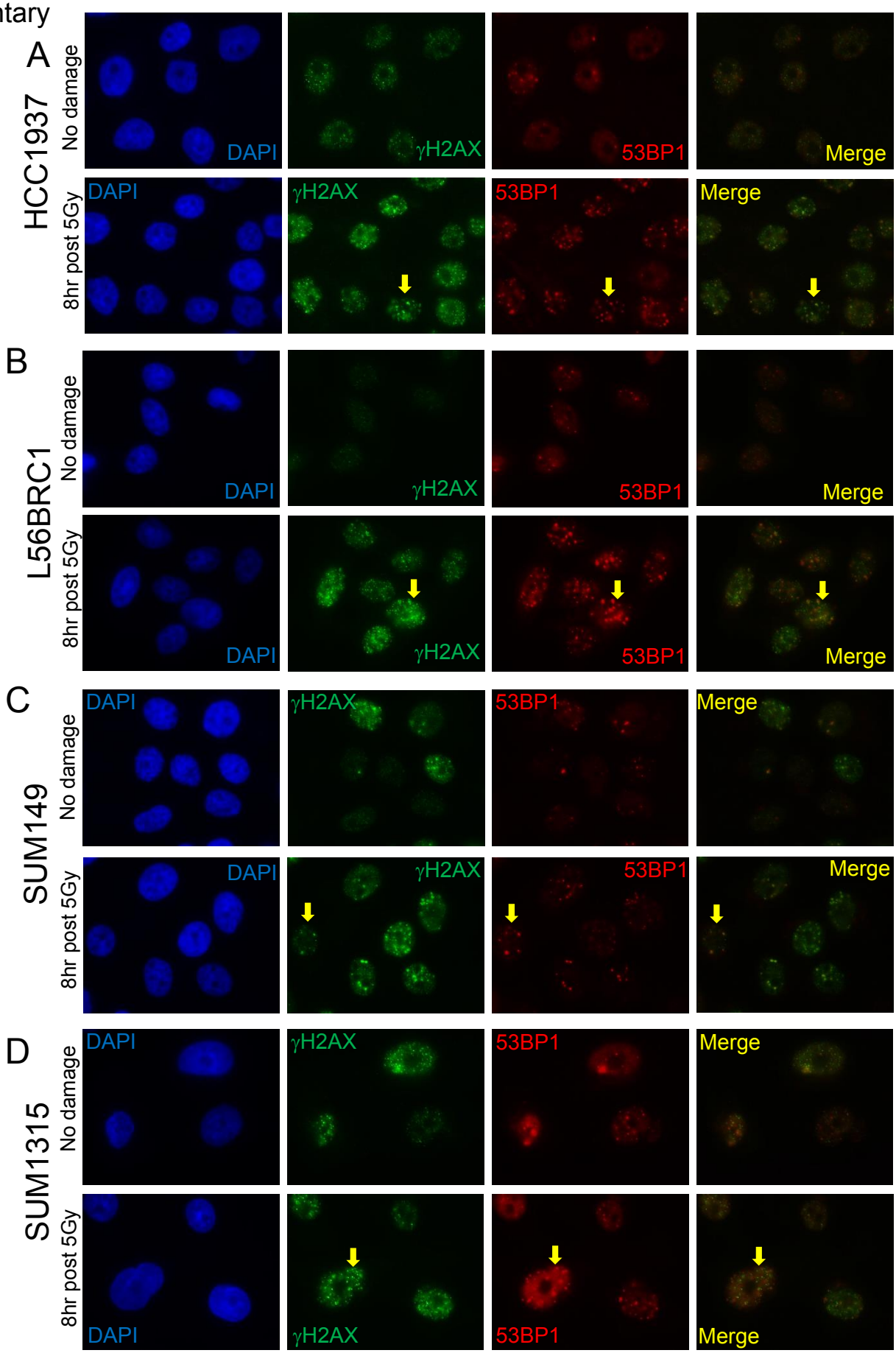
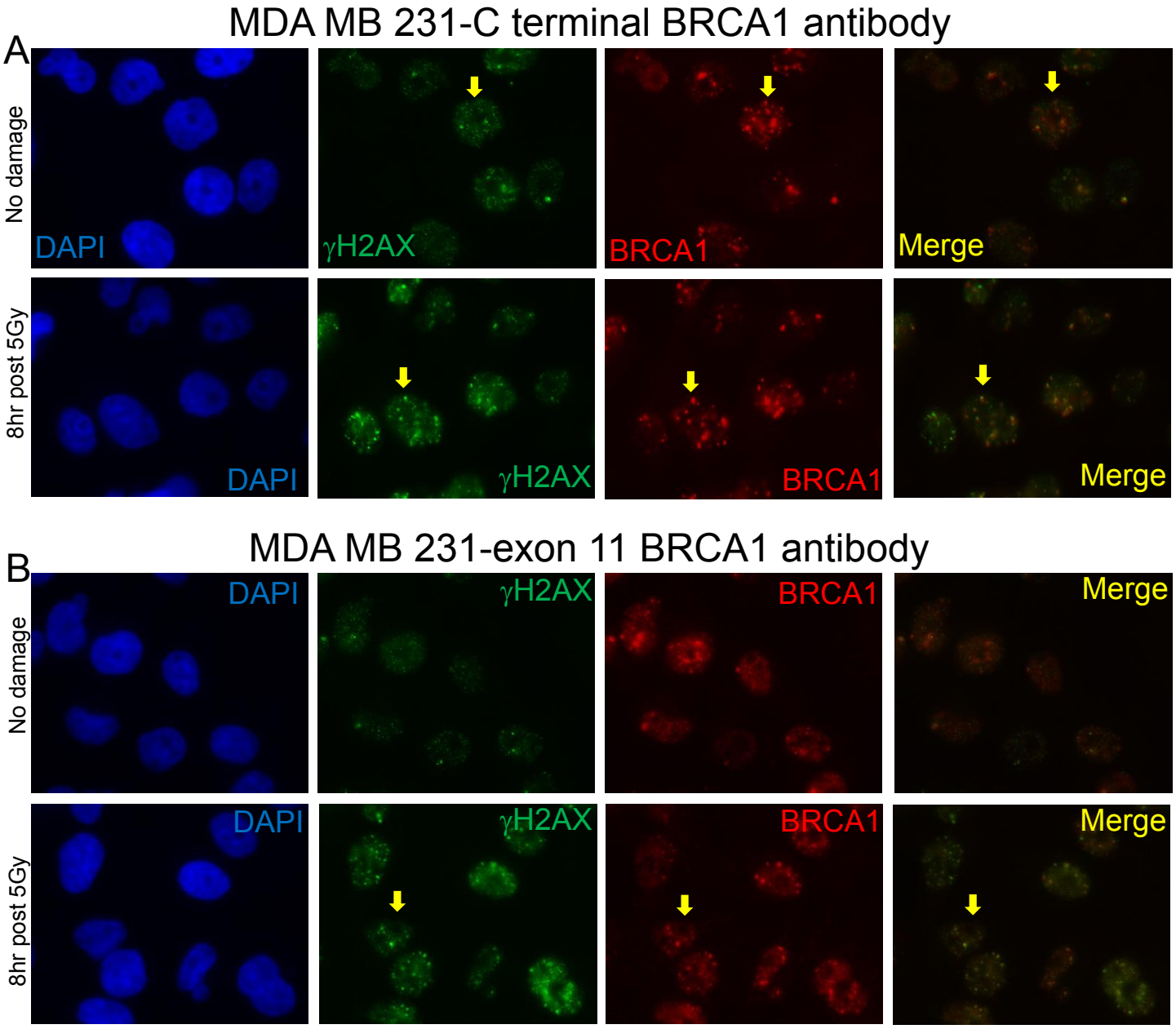
Supplementary Figure 1



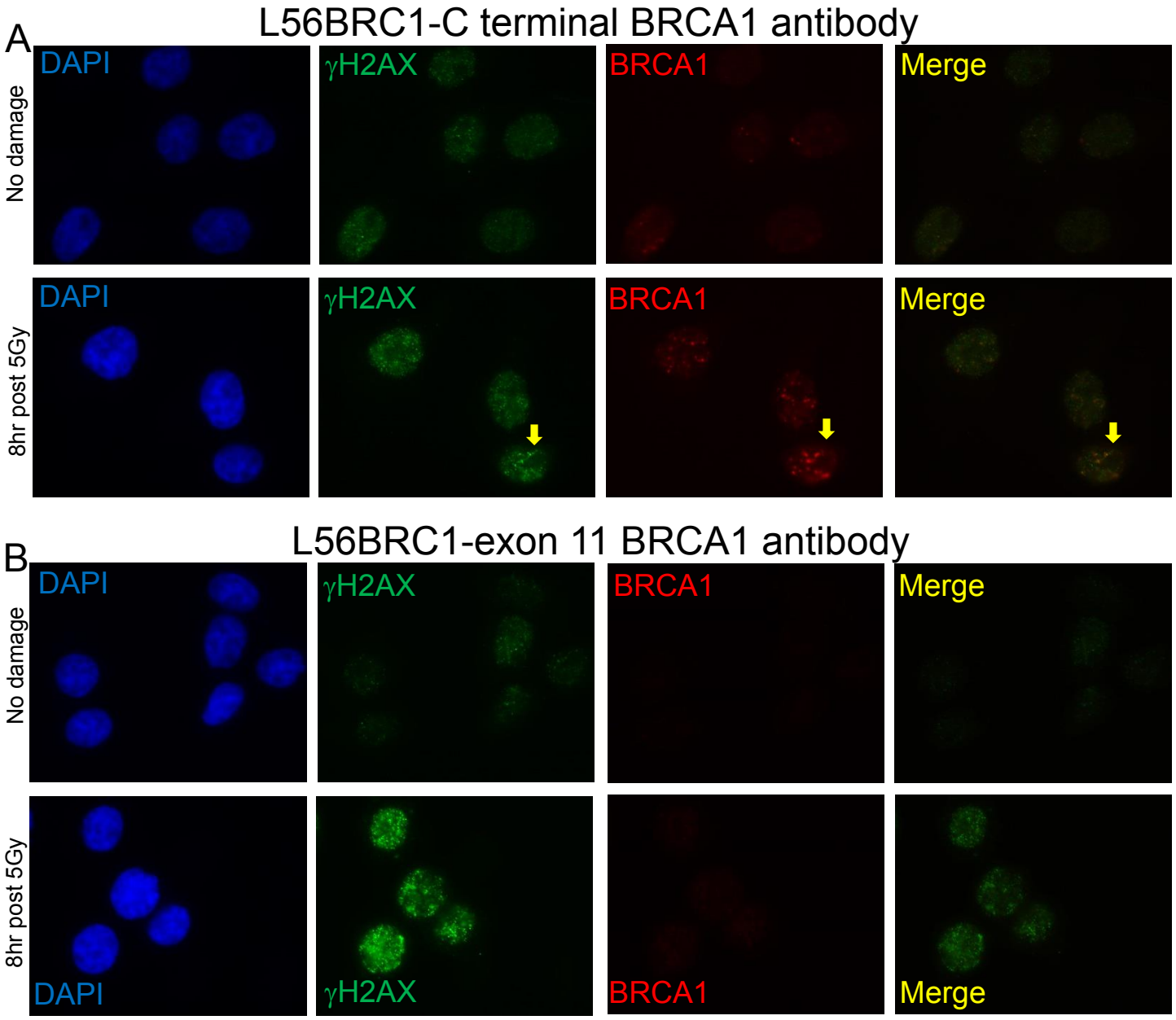
Supplementary Fig. 1-Post-Damage 53BP1 foci in BRCA1 mutant cell lines: The BRCA1 mutant cell lines HCC1937 (A), L56BRC1 (B), SUM149 (C), and SUM1315 (D) were treated with or without 5Gy irradiation and stained with γH2AX and 53BP1 antibodies 8 hours after treatment. The brightness has been increased by 20% and the contrast increased by 20% using PowerPoint in every panel to alleviate difficulties with the conversion of the images to PDF. Yellow arrows indicate a representative cell in which there is co-localization.

Supplementary Figure 2



Supplementary Figs. 2, 3, 4- Post-damage BRCA1 foci in Δ11b expressing mutant lines are not recognized by exon 11 specific BRCA1 antibodies: The two BRCA1 mutant control lines expressing Δ11b but not p220 (L56BRC1-Supplementary Fig. 3 and SUM149-Supplementary Fig. 4), and a sporadic BLC line (MDA MB 231-Supplementary Fig. 2) were exposed to 5Gy gamma irradiation (IR) or no IR and allowed to recover for 8hr. All cells were then stained with a C-terminal specific BRCA1 antibody that recognizes both p220 and Δ11b (Supplementary Figs. 2A, 3A, 4A) or an exon 11 BRCA1 antibody that cannot recognize Δ11b (Supplementary Figs. 2B, 3B, and 4B), both along with γH2AX to mark DNA damage. Yellow arrows are placed next to a few representative cells in which there is co-localization. The brightness has been increased by 20% and the contrast increased by 20% using PowerPoint in every panel to alleviate difficulties with the conversion of the images to PDF.

Supplementary Figure 3



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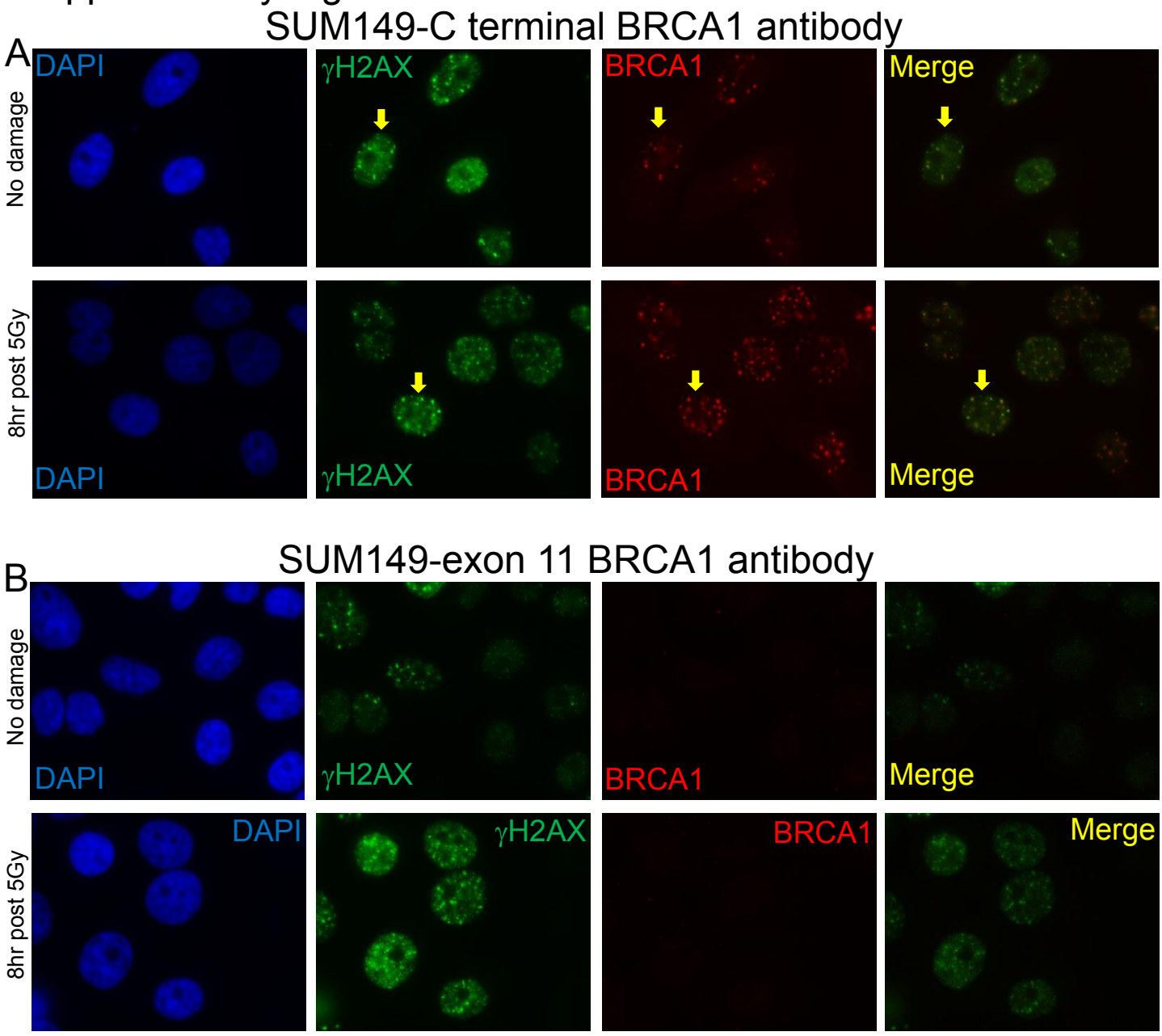
Supplementary Figure 4



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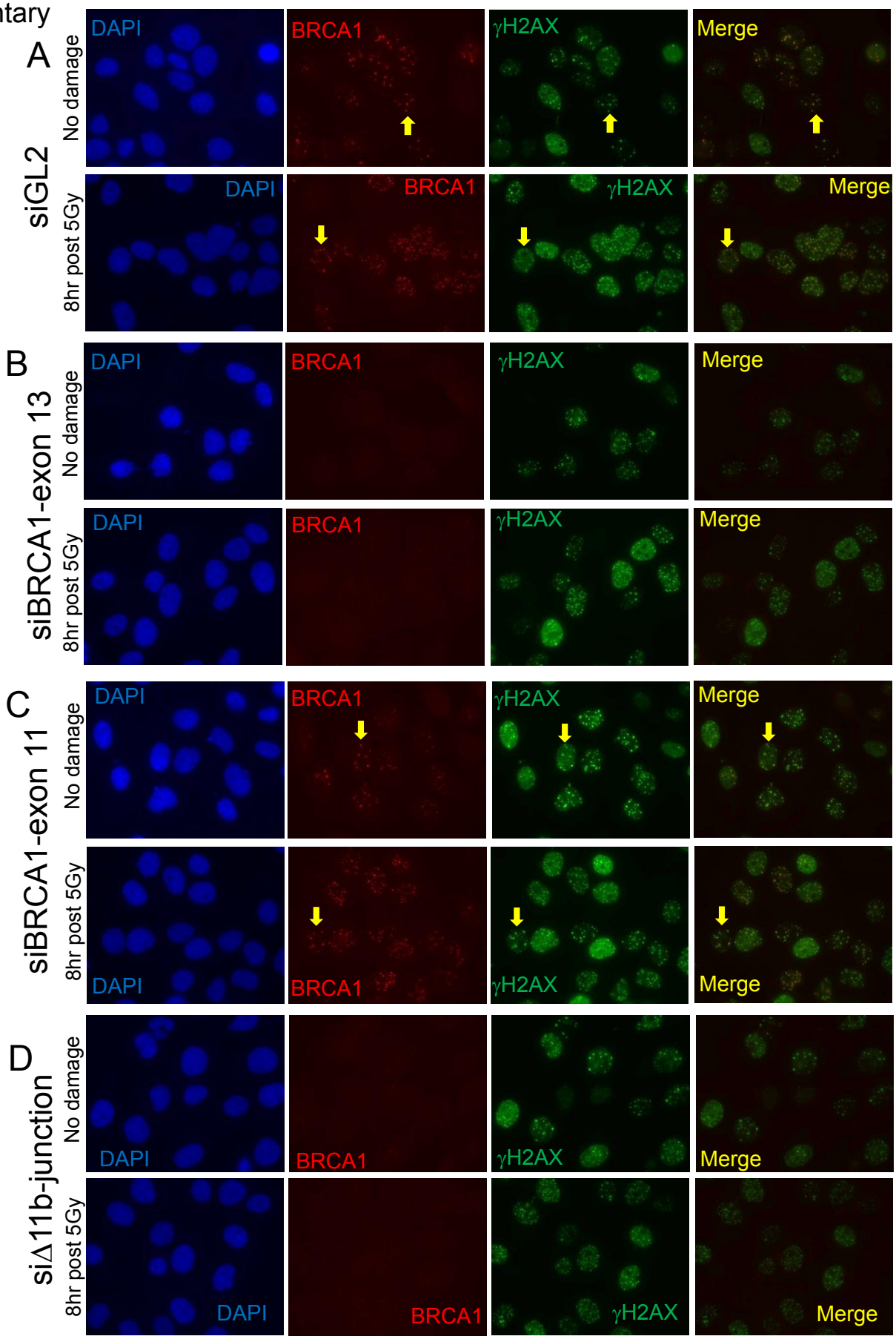
Supplementary Figure 5



Supplementary Fig. 5-Post-Damage BRCA1 foci apparent in a BRCA1 mutant cell line able to express Δ11b disappeared when the line was transfected with a Δ11b-specific siRNA: The BRCA1 mutant cell line, SUM149, expresses Δ11b but not p220. It was transfected with either a control siRNA (siGL2) (S5A), an exon 13-directed BRCA1 siRNA (S5B), an exon 11-directed BRCA1 siRNA (S5C), or a Δ11b junction-directed siRNA (S5D) (The targets of all siRNAs were mapped in Figure 5B). These cells were exposed to either 5Gy gamma irradiation or mock treated, allowed to recover for 8hrs, and fixed. Immunofluorescence was then performed for BRCA1 with a C-terminal specific BRCA1 antibody and for γH2AX. Yellow arrows are placed next to a few representative cells in which there is co-localization. The brightness has been increased by 20% and the contrast decreased by 20% using PowerPoint in every panel to alleviate difficulties with the conversion of the images to PDF.

Supplementary Table 1-HR reporter data corresponding to Figure 5C							
Percent GFP-positive cells for each cell line with each siRNA for each of four separate experiments							
SUM149		Day 1	Day 2	Day 3	Day 4	Average of 4 days	Standard Deviation
	SUM149 siGL2	0.34	0.34	0.47	0.25	0.35	0.09
	SUM149 siB1 ex 11 #1	0.06	0.16	0.10	0.08	0.10	0.04
	SUM149 siB1 ex 11 #2	0.05	0.15	0.15	0.11	0.11	0.05
	SUM149 siΔ11b junction	0.10	0.17	0.23	0.12	0.16	0.06
	SUM149 siB1 ex 13	0.17	0.23	0.33	0.31	0.26	0.08
MDA MB 231		Day 1	Day 2	Day 3	Day 4	Average of 4 days	Standard Deviation
	MDA MB 231 siGL2	0.48	0.84	0.73	1.15	0.80	0.28
	MDA MB 231 siB1 ex 11 #1	0.19	0.37	0.21	0.20	0.24	0.09
	MDA MB 231 siB1 ex 11 #2	0.03	0.18	0.20	0.14	0.14	0.07
	MDA MB 231 siΔ11b junction	0.36	0.67	0.59	0.80	0.61	0.18
	MDA MB 231 siB1 ex 13	0.03	0.14	0.07	0.12	0.09	0.05
HCC38		Day 1	Day 2	Day 3	Day 4	Average of 4 days	Standard Deviation
	HCC38 siGL2	2.05	1.44	2.35	2.51	2.09	0.47
	HCC38 siB1 ex 11 #1	0.46	0.39	0.51	0.42	0.44	0.05
	HCC38 siB1 ex 11 #2	0.62	0.43	0.91	0.61	0.64	0.20
	HCC38 siΔ11b junction	1.98	1.40	2.15	2.65	2.04	0.52
	HCC38 siB1 ex 13	0.48	0.47	0.86	0.78	0.65	0.20
Percent GFP-positive cells relative to the siGL2 transfection for each cell line with each siRNA for each of four separate experiments							
SUM149		Day 1	Day 2	Day 3	Day 4	Average of 4 days	Standard Deviation
	SUM149 siGL2	100.00	100.00	100.00	100.00	100.00	0.00
	SUM149 siB1 ex 11 #1	15.18	45.31	31.18	42.93	33.65	13.78
	SUM149 siB1 ex 11 #2	49.11	67.67	70.97	125.56	78.33	32.93
	SUM149 siΔ11b junction	30.95	51.19	48.82	46.98	44.49	9.19
	SUM149 siB1 ex 13	18.45	47.66	21.94	32.38	30.11	13.11
MDA MB 231		Day 1	Day 2	Day 3	Day 4	Average of 4 days	Standard Deviation
	MDA MB 231 siGL2	100.00	100.00	100.00	100.00	100.00	0.00
	MDA MB 231 siB1 ex 11 #1	39.00	44.32	28.51	17.65	32.37	11.81
	MDA MB 231 siB1 ex 11 #2	7.05	21.77	27.01	11.91	16.94	9.09
	MDA MB 231 siΔ11b junction	75.52	79.79	79.81	69.74	76.21	4.76
	MDA MB 231 siB1 ex 13	6.85	16.53	9.55	10.35	10.82	4.09
HCC38		Day 1	Day 2	Day 3	Day 4	Average of 4 days	Standard Deviation
	HCC38 siGL2	100.00	100.00	100.00	100.00	100.00	0.00
	HCC38 siB1 ex 11 #1	22.38	26.77	21.76	16.92	21.96	4.03
	HCC38 siB1 ex 11 #2	30.39	29.55	38.46	24.54	30.74	5.76
	HCC38 siΔ11b junction	96.76	96.99	91.46	105.89	97.77	5.98
	HCC38 siB1 ex 13	23.65	32.68	36.63	31.30	31.07	5.44

Supplementary Table 1-HR reporter data corresponding to Figure 5C: Results from homologous recombination (HR) reporter assays on each cell line with each siRNA for four separate experiments. On the top panel, the percentage of GFP positive cells is reported. On the bottom panel the percentage of GFP positive cells relative to the siGL2 control is reported. (B1=BRCA1, ex=exon)