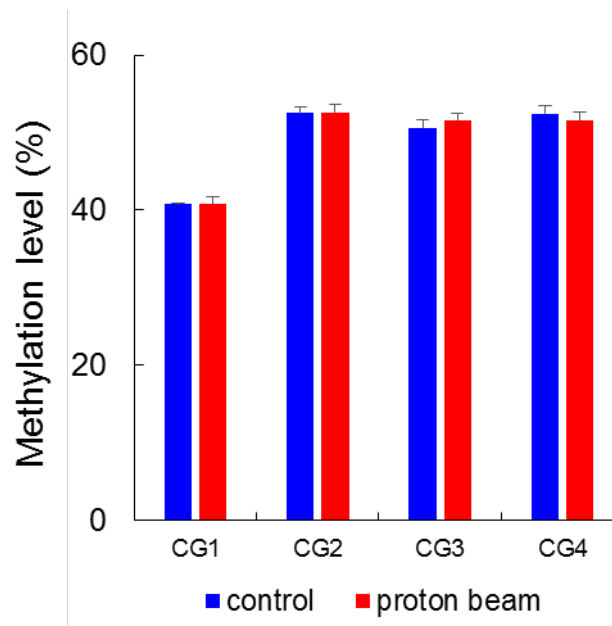
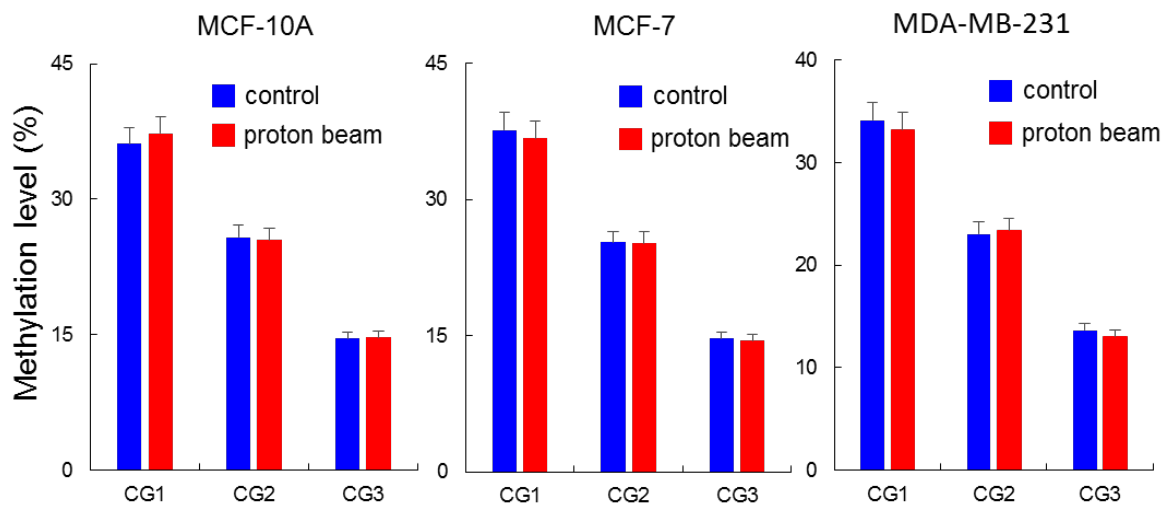


Supplementary Figure S1. Effect of proton beam on the *LINE1* methylation level in the MDA-MB-231 cell. Four CpG sites on the *LINE1* in MDA-MB-231 cell line were analyzed for their methylation level by pyrosequencing after treatment with proton beams. Average values for each CpG were determined by five independent experiments and are given with the standard errors.



Supplementary Figure S2. Effect of proton beam on the *Alu* methylation level in the MCF-10A, MCF-7, and MDA-MB-231 cells. The methylation level of the three CpGs on the *Alu* from the MCF-10A, MCF-7, and MDA-MB-231 was determined by pyrosequencing after the cells were treated with proton beams. Average values for each CpG were determined by five independent experiments and are given with the standard errors.



Supplementary Table S1. Sequences of primers employed in this study.

Genes	Forward primer (5'–3')	Reverse primer (5'–3')
Real-time RT-PCR		
MDH2	GTTGCAGAGCTGAAGGGTTT	GTGAGTGCTGTCAGCTGGTC
STYXL1	ACTGCCCTTCGAGTGAAGAA	CAAGATCTTTGCCATCACCA
CPE	AACCGGAACTTTCCAGACCT	TTCAGGAGCAAGCTTTGTG
FAM91A1	GGATGGAGGGGAAAGTAGGA	GGCTGTGTCAGCTGGATCTT
GPR37	CTGGCCTTCTGGGACTTTCT	TCCCAGAGAAGCGACCTCTA
POU2AF1	CATGGACACCTTACACCGAGT	TGTCGTGACATTGGTGATGA