

Supplementary material

Supplementary Table S1. Information about age and gender from the healthy donors involved in the dose-response and sequencing analysis experiments.¹ Donor 4 and Donor 10 are the same donor; ² Donor 9 and Donor 11 are also the same donor.

	Gender	Age range	
Sequencing analysis	Donor 1	F	35-44
	Donor 2	F	45-54
	Donor 3	M	35-44
	Donor 4 ¹	F	35-44
	Donor 5	M	45-54
	Donor 6	F	45-54
	Donor 7	F	>54
	Donor 8	M	25-34
	Donor 9 ²	M	25-34
Dose-response	Gender	Age range	
	Donor 10 ¹	F	35-44
	Donor 11 ²	M	25-34
	Donor 12	M	>54
	Donor 13	M	<25
	Donor 14	M	45-54
	Donor 15	F	>54
	Donor 16	M	45-54

Supplementary Table S2. Primer sequences used for qPCR analysis.

Gene		Primers and probes sequences
FDXR	F	GTACAACGGGCTTCCTGAGA
	R	CTCAGGTGGGTCAGTAGGA
	probe	CGGGCCACGTCCAGAGCCA
APOBEC3H	F	AGTCTGCTAAGGAAGCTGTG
	R	GCGGCGCTTGTGTAAA
	probe	AGCACAGATCAGAAACACGATGGCT
GADD45	F	CTGCGAGAACGACATCAAC
	R	AGCGTCGGTCTCCAAGAG
	probe	ATCCTGCGCGTCAGCAACCCG
DDB2	F	GTCACTTCCAGCACCTCACA
	R	ACGTCGATCGTCCTCAATTC
	probe	AGCCTGGCATCCTCGTACAACC
HPRT1	F	TCAGGCAGTATAATCCAAGATGGT
	R	CGCAAGCTTGCTGGTAAAAGGACCC
	probe	AGTCTGGCTTATATCCAACACTTCG

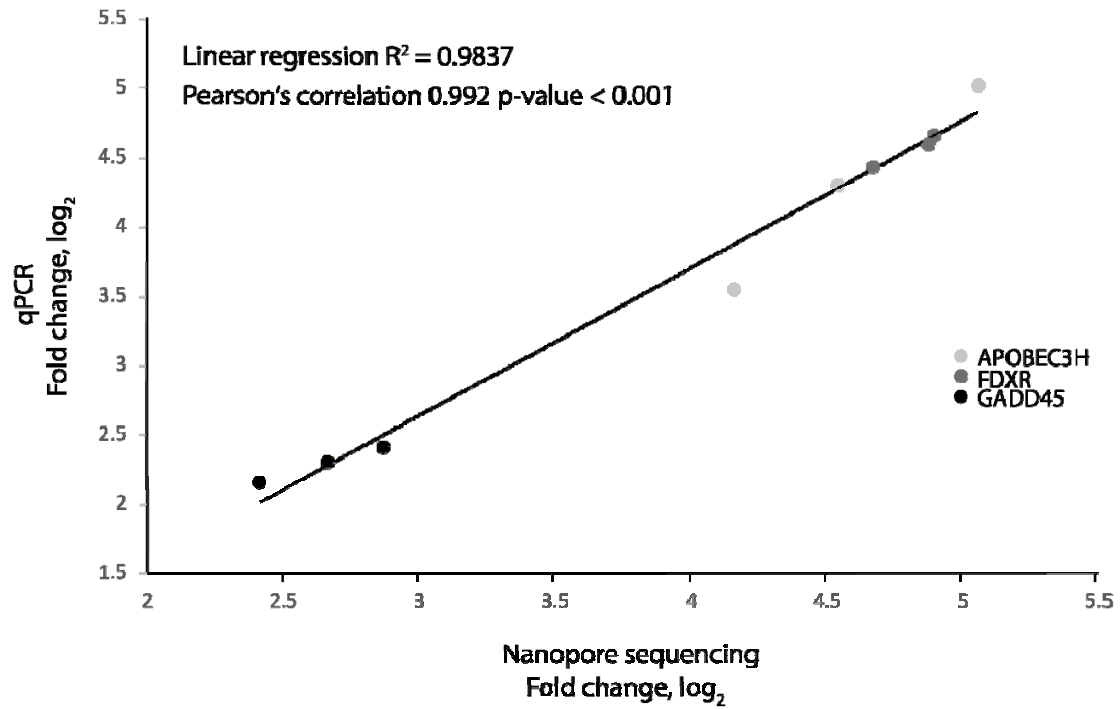
Supplementary Table S3. Differentially Expressed Genes identified by nanopore sequencing in response to radiation in order of significance (by p-value). The average of counts, the standard deviation (SD), coefficient of variation (CV), p-values and FDR values per gene are presented in the following table (counts normalized to HPRT1).

Gene symbol	Ensembl ID	Control Counts normalized	SD	CV	Irradiated Counts normalized	SD	CV	PValue	FDR
APOBEC3H	ENSG00000100298	0.5713	0.1698	29.7	11.9763	3.7839	31.6	7.97E-09	0.0002
FDXR	ENSG00000161513	0.0582	0.0179	30.8	1.1557	0.0976	8.4	1.55E-08	0.0002
DDB2	ENSG00000134574	1.9009	0.4949	26.0	17.8732	1.4386	8.0	5.27E-08	0.0005
CTSO	ENSG00000256043	0.3071	0.1767	57.5	0	0	/	1.78E-07	0.0007
BBC3	ENSG00000105327	0.0627	0.0148	23.6	0.8966	0.1244	13.9	1.91E-07	0.0007
ZMAT3	ENSG00000172667	0.1591	0.0642	40.4	1.2115	0.1847	15.2	1.92E-07	0.0007
TNFSF8	ENSG00000106952	0.3561	0.0257	7.2	2.2403	0.4527	20.2	2.12E-07	0.0007
AEN	ENSG00000181026	0.1246	0.0381	30.6	0.9593	0.0179	1.9	2.14E-07	0.0007
BAX	ENSG00000087088	1.3447	0.1753	13.0	7.5686	1.3602	18.0	3.02E-07	0.0008
LINC00475	ENSG00000225511	0.0044	0.0004	9.1	0.1295	0.0098	7.6	3.03E-07	0.0008
CD70	ENSG00000125726	0.2257	0.0512	22.7	1.2826	0.5122	39.9	4.49E-07	0.0010
MAMDC4	ENSG00000177943	0.0517	0.0159	30.8	0.3759	0.0694	18.5	5.65E-07	0.0012
TNFSF4	ENSG00000117586	0.0245	0.0098	40.0	0.2341	0.045	19.2	8.26E-07	0.0016
CMBL	ENSG00000164237	0.011	0.0033	30.0	0.1447	0.0137	9.5	1.11E-06	0.0020
MDM2	ENSG00000135679	1.7591	0.3494	19.9	7.7644	0.3704	4.8	1.37E-06	0.0023
GADD45A	ENSG00000116717	0.1809	0.0264	14.6	1.2992	0.2018	15.5	1.62E-06	0.0025
TNFRSF10B	ENSG00000120889	0.4385	0.1518	34.6	2.1418	0.0667	3.1	1.65E-06	0.0025
PCNA	ENSG00000132646	0.8785	0.0612	7.0	3.5171	0.7145	20.3	1.90E-06	0.0027
HSD17B8	ENSG00000204228	0.0843	0.0546	64.8	0	0	/	2.19E-06	0.0029
EDA2R	ENSG00000131080	0.0033	0.0026	78.8	0.1243	0.0138	11.1	2.28E-06	0.0029
ACTA2	ENSG00000107796	0.1462	0.0244	16.7	0.6099	0.0856	14.0	3.31E-06	0.0038
RPS27L	ENSG00000185088	10.0617	0.1892	1.9	41.552	5.4299	13.1	3.36E-06	0.0038
CCNG1	ENSG00000113328	0.7126	0.1661	23.3	2.8706	0.3665	12.8	3.43E-06	0.0038
IGLV1-44	ENSG00000211651	0.0776	0.084	108.2	0	0	/	6.23E-06	0.0067
TMEM30A	ENSG00000112697	0.7525	0.025	3.3	2.4629	0.197	8.0	8.99E-06	0.0090
TRIAP1	ENSG00000170855	0.7634	0.0361	4.7	2.4651	0.3851	15.6	9.17E-06	0.0090
GLS2	ENSG00000135423	0.0125	0.0044	35.2	0.1014	0.013	12.8	1.04E-05	0.0097
RPL23AP42	ENSG00000234851	0.0646	0.0579	89.6	0.5863	0.4195	71.6	1.06E-05	0.0097
POLH	ENSG00000170734	0.1758	0.036	20.5	0.6023	0.0868	14.4	1.22E-05	0.0108
XPC	ENSG00000154767	0.8589	0.225	26.2	3.1482	0.5114	16.2	1.40E-05	0.0120
PHPT1	ENSG00000054148	7.9823	0.7359	9.2	27.73	4.1228	14.9	2.02E-05	0.0162
VPS28	ENSG00000160948	0	0	/	0.0663	0.0881	132.9	2.12E-05	0.0165
LIF	ENSG00000128342	0.0165	0.0065	39.4	0.0989	0.0196	19.8	2.68E-05	0.0202
SESN1	ENSG00000080546	0.6781	0.2311	34.1	2.628	0.9636	36.7	2.99E-05	0.0205
ASCC3	ENSG00000112249	0.4081	0.0462	11.3	1.1673	0.0719	6.2	3.00E-05	0.0205
Novel Pseudogene	ENSG00000283234	0.0004	0.0004	100.0	0.0273	0.0061	22.3	3.02E-05	0.0205
RPS19P1	ENSG00000214612	0.5072	0.107	21.1	1.5562	0.4361	28.0	3.03E-05	0.0205
FHL2	ENSG00000115641	0.0302	0.008	26.5	0.1869	0.0891	47.7	3.22E-05	0.0212
PRMT7	ENSG00000132600	0.2428	0.0886	36.5	0.8133	0.2288	28.1	3.88E-05	0.0249
SLC7A6	ENSG00000103064	0.3607	0.1445	40.1	1.2235	0.0325	2.7	4.27E-05	0.0267
VWCE	ENSG00000167992	0.0047	0.0013	27.7	0.0349	0.0068	19.5	8.02E-05	0.0490
PTP4A1 Pseudogene	ENSG00000278275	0.0827	0.0222	26.8	0.262	0.0168	6.4	8.39E-05	0.0493
ZNF541	ENSG00000118156	0.0325	0.0262	80.6	0.1508	0.0572	37.9	8.73E-05	0.0493
PAPPA	ENSG00000182752	0.0025	0.0017	68.0	0.0318	0.0042	13.2	8.78E-05	0.0493
PLK2	ENSG00000145632	0.0139	0.00444	31.9	0.0763	0.0126	16.5	8.84E-05	0.0493
FAS	ENSG00000026103	0.3315	0.07829	23.6	0.8614	0.1994	23.1	9.16E-05	0.0500

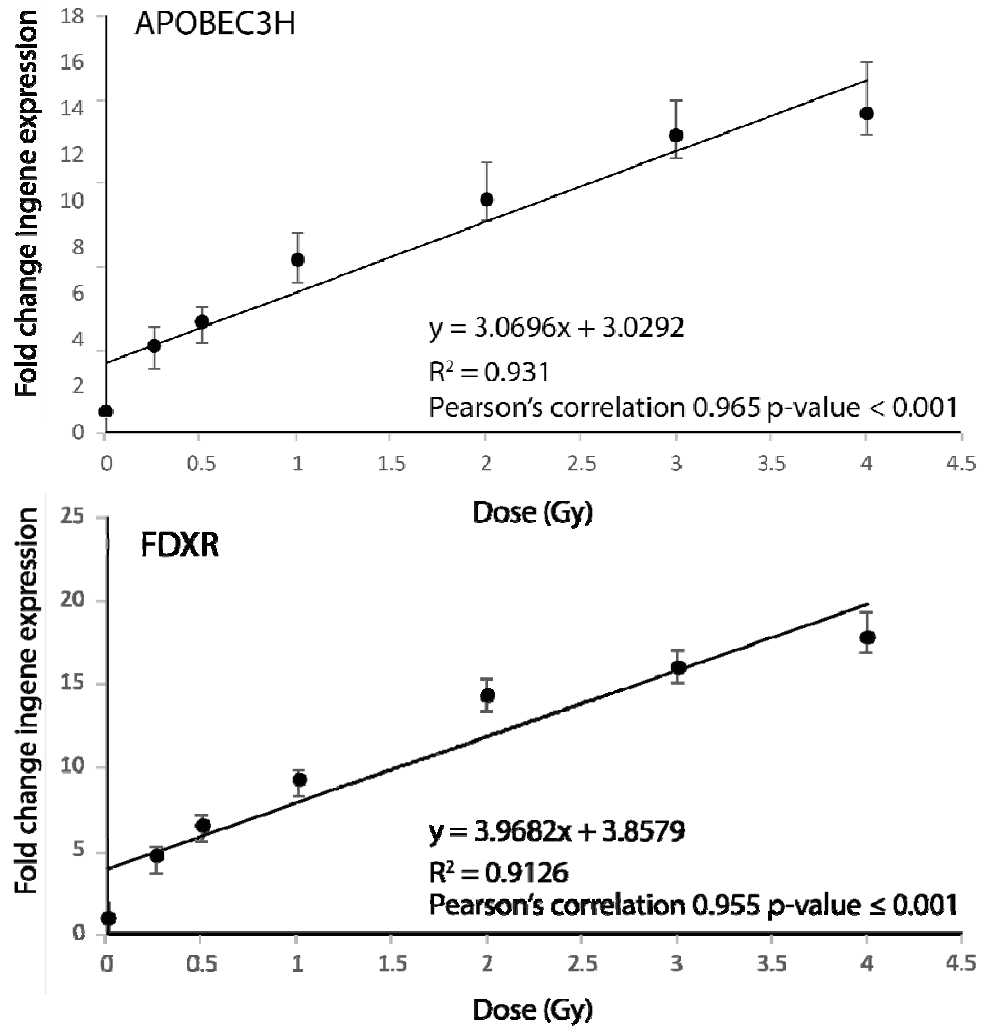
Supplementary Table S4. qPCR analysis performed in the sequenced samples (Figure 3B). The average of the fold changes and the standard deviation (SD) are included in the table. Statistical analyses were performed in log transformed data. Paired-T-test between the control and irradiated samples was applied and the p-values included in the table.

	<u>Control</u>		<u>Irradiated</u>		<u>p-value</u>
	<u>Average Fold change</u>	<u>SD</u>	<u>Average Fold change</u>	<u>SD</u>	
FDXR	1.30	0.26	23.65	1.98	0.003
APOBEC3H	1.20	0.30	21.22	10.4	0.021
GADD45A	0.89	0.10	4.90	0.44	0.002
DDB2	1.08	0.17	7.44	1.43	0.003

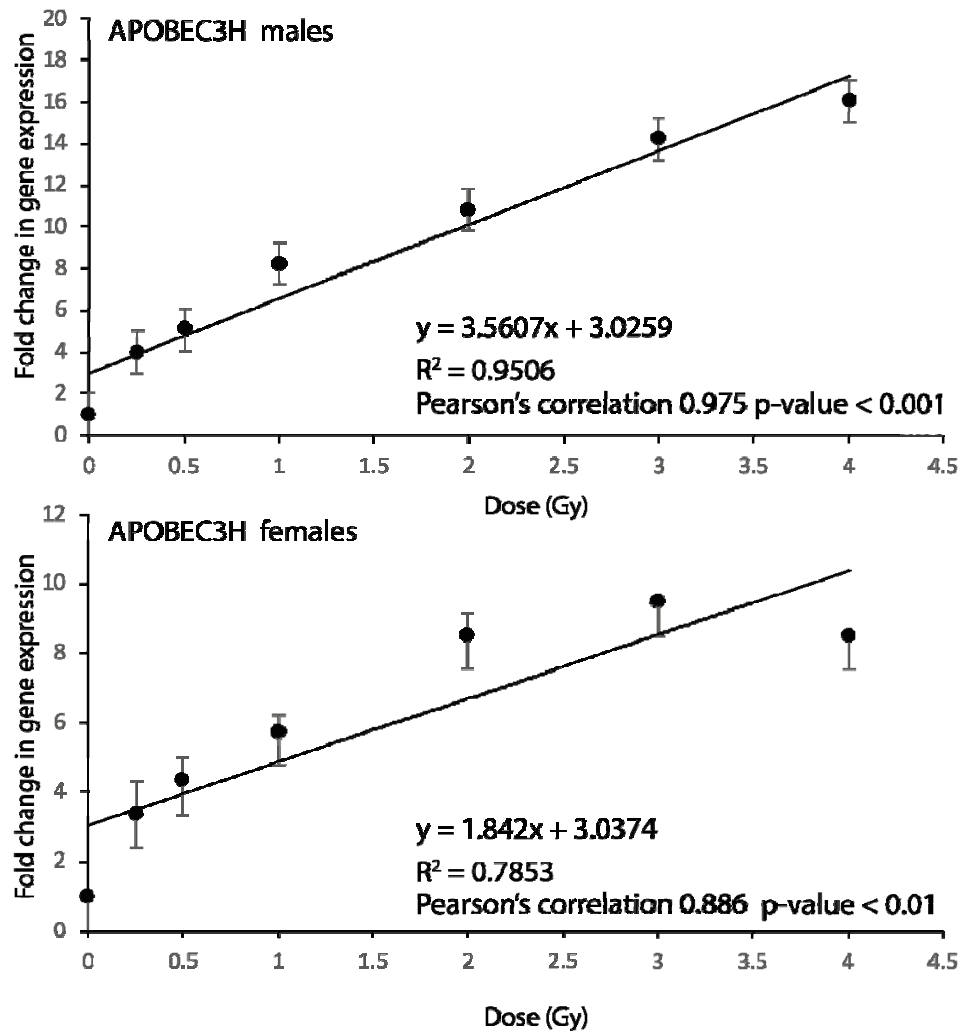
Supplementary Figure S1. Linear regression analysis of the correlation between qPCR and sequencing analyses. The logarithm of the fold changes obtained for APOBEC3H, FDXR and GADD45A by qPCR and sequencing have been presented for the 3 replicates. A linear regression is shown in the figure with a R^2 value of 0.9837. Pearson's correlation coefficient is 0.992 at $P < 0.001$.



Supplementary Figure S2. Dose-response curves adjusted by linear regression model for APOBEC3H and FDXR. The mean expression of 7 donors (2 females and 5 males) was used to generate these dose-response curves using a linear fit. Data are shown as mean \pm standard error of the mean (S.E.M.). Pearson's correlation coefficient and p-values are shown for each gene.



Supplementary Figure S3. Dose-response curves adjusted by linear regression model for APOBEC3H. The mean expression of 5 male or 2 female donors was used to generate these dose-response curves using a linear fit. Data are shown as mean \pm S.E.M. Pearson's correlation coefficient and p-values are shown for males and females.



Supplementary Figure S4. Dose-response curves adjusted by linear regression model for FDXR. The mean expression of 5 male or 2 female donors was used to generate these dose-response curves using a linear fit. Data are shown as mean \pm S.E.M. Pearson's correlation coefficient and p-values are shown for males and females.

