

Supplementary figures and tables for

PRDM15 interacts with DNA-PK-Ku complex to promote radioresistance in rectal cancer by facilitating DNA damage repair

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Supplementary figure 1

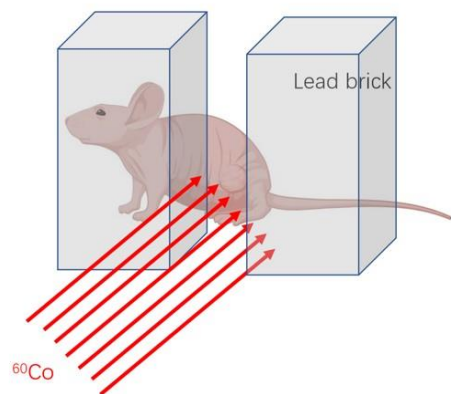


Figure S1. Schematics of local irradiation strategy of tumor bearing mice of CDX and PDX model.

Supplementary figure 2



Figure S2. Expression of PRDM15 in different CRC cell lines.

Supplementary figure 3

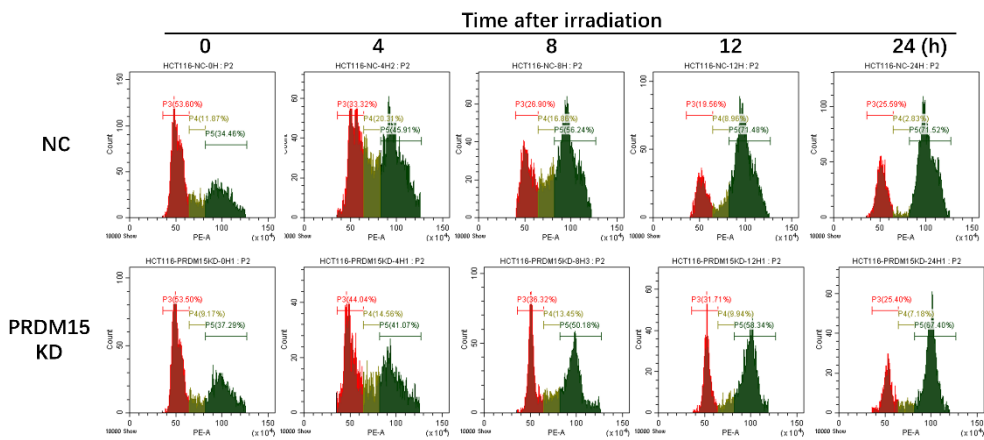


Figure S3. Flow cytometry analyzing cell cycle distribution in response to IR (Relative to Fig. 2I).

Supplementary figure 4

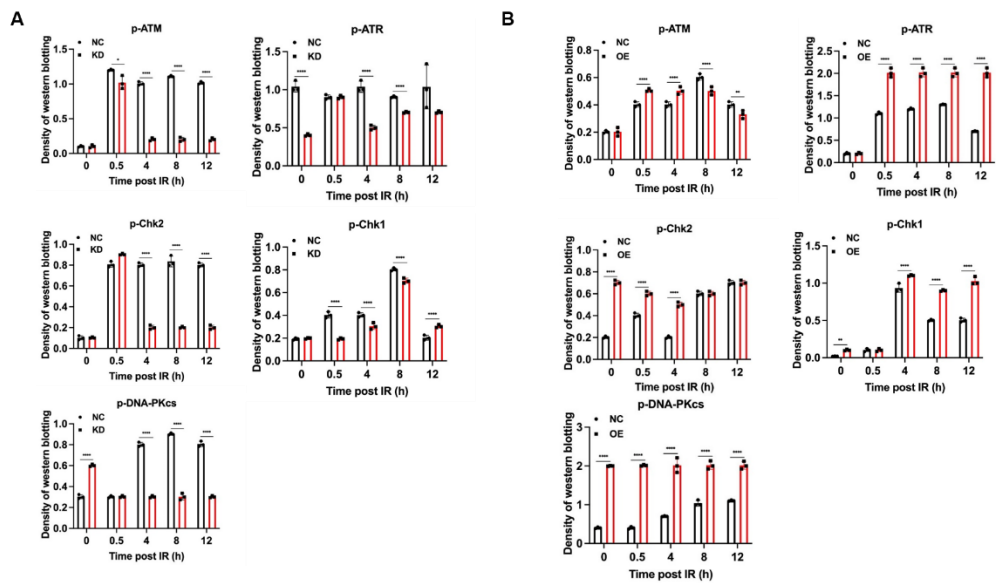


Figure S4. Quantitative analysis of raw density of Western blot of molecules in DNA damage response. (A) Quantitative analysis of raw density of Western blot of PRDM15-NC and PRDM15-KD after IR at different time points. (B) Quantitative analysis of raw density of Western blot of PRDM15-NC and PRDM15-OE after IR at different time points.

Supplementary figure 5

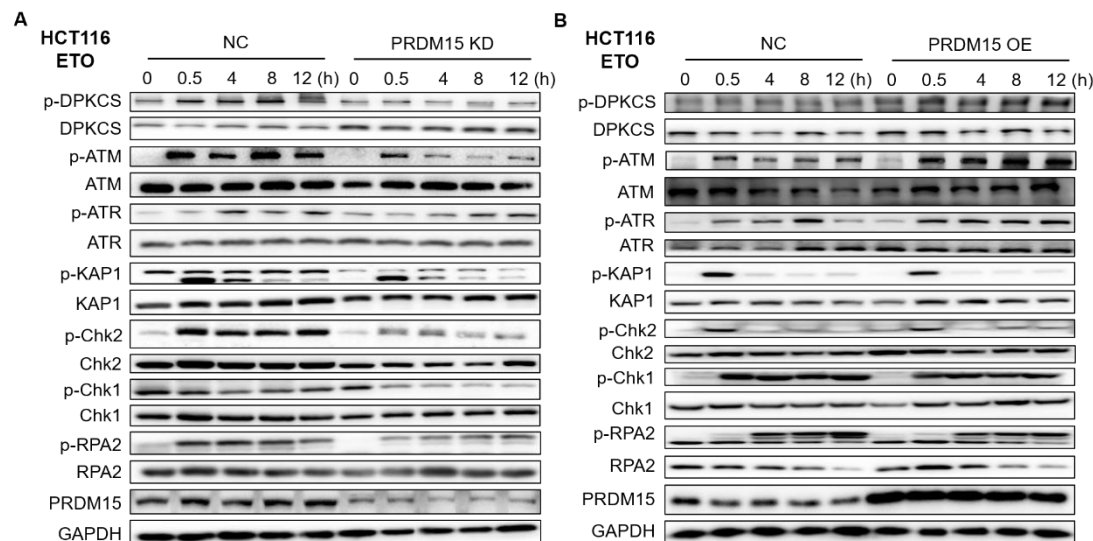


Figure S5. PRDM15 is required for the activation of DNA-PKcs mediated DNA repair (Etoposide treatment). (A) Western Blot analysis of the protein expression in DNA

Damage Response pathway in PRDM15-NC and PRDM15-KD cells after ETO at different time points. (B) Western Blot analysis of the protein expression in DNA Damage Response pathway in PRDM15-NC and PRDM15-OE cells after ETO at different time points.

Supplementary figure 6

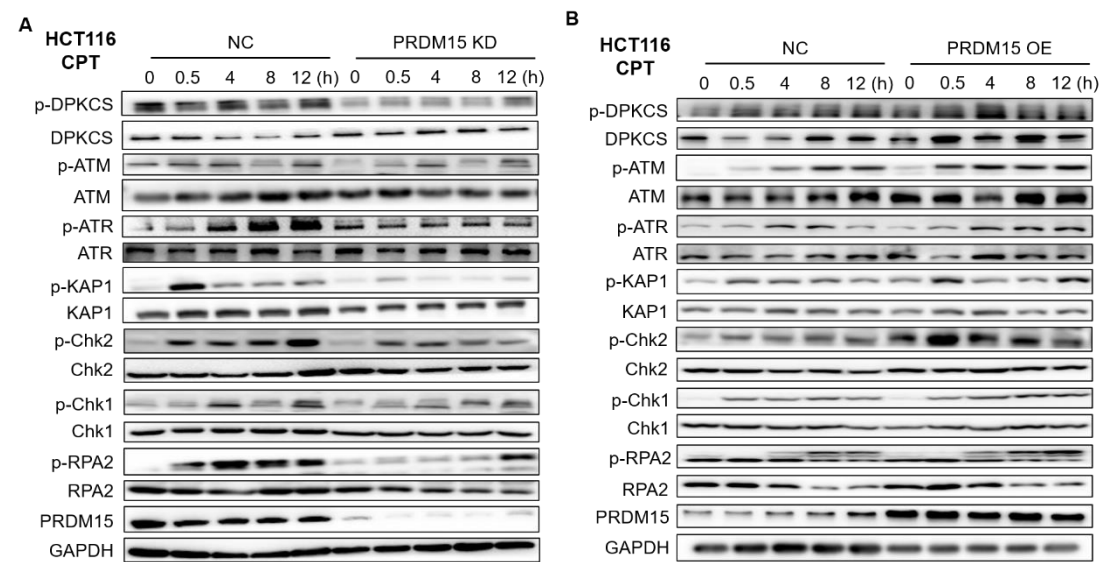


Figure S6. PRDM15 is required for the activation of DNA-PKcs mediated DNA repair (CPT treatment). (A) Western Blot analysis of the protein expression in DNA Damage Response pathway in PRDM15-NC and PRDM15-KD cells after CPT at different time points. (B) Western Blot analysis of the protein expression in DNA Damage Response pathway in PRDM15-NC and PRDM15-OE cells after CPT at different time points.

Supplementary figure 7

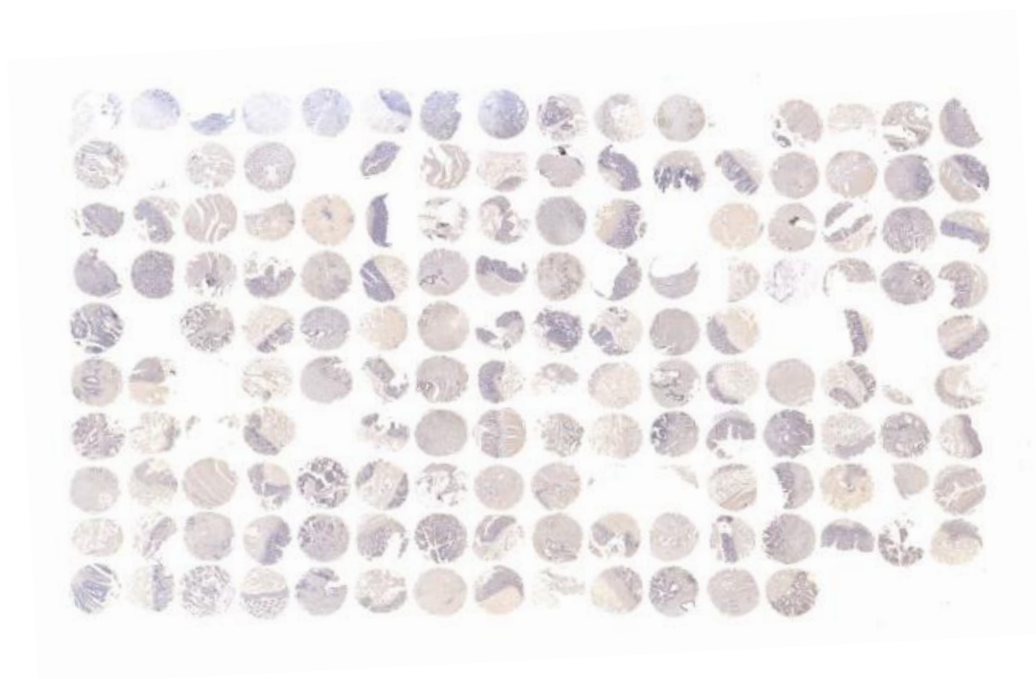


Figure S7. Scanned image of tissues microarray including CRC patients classified with radiosensitivity by TRG score (See also Table S3).

Supplementary Tables

Supplementary Table 1

Table S1. Sequence information used in this study	
ID	seq
PRDM15 Sh1	AGCCGCAAAGAGAGCCTAAAG
PRDM15 Sh2	AGATACCTTTGAACGTGAATA
PRDM15 Sh3	CGCTCAAGAGGAGCTTAATTC
PRDM15 OE sequence	GAATTCATGGCTGAAGATGGGAGCGAAGAGATCATGTTTCATCTGGTGTGAA GACTGCAGCCAGTACCACGACTCCGAATGTCCCGAGCTGGGCCCAGTGGT CATGGTCAAAGACTCCTTTGTGTTAAGCAGGGCAAGGTCTTGGCCTGCCAG CGGACACGTGCACACCCAGGCGGGGCAGGGGATGCGGGGTTATGAGGACA GGGACAGGGCTGACCCACAGCAGCTTCCAGAAGCAGTCCCTGCAGGCCTG GTGAGGCGGCTCAGTGGGCAGCAGCTGCCCTGCCGTTCACCCCTCACCTG GGGGAGGCTGTGCCACCTGGTGGCCCAGGGCAGGTCATCCCTTCCTCCCA ACTTGGAGATCAGACGACTGGAAGATGGAGCCGAGGGGGTGTTCGCCATC ACTCAGCTCGTCAAGCGGACACAGTTCGGTCCCTTTGAGTCCAGGAGGGT CGCCAAATGGGAAAAGGAGTCTGCATTTCCCTGAAGGTGTTCCAGAAGG ACGGGCACCCCGTGTGCTTCGACACCTCCAACGAGGATGACTGCAACTGG ATGATGCTGGTGC GGCCAGCGGCGGAGGCCGAGCACCAGAACCTGACGGC CTACCAGCACGGCAGCGACGTGTACTTCACCACCTCCAGAGACATCCCCC GGGTACCGAGCTGCGCGTGTGGTATGCGGCCTTCTATGCCAAGAAGATGGA CAAGCCCATGCTGAAGCAGGCCGGCTCTGGCGTCCACGCTGCAGGCACCC CAGAAAACAGCGCCCCCGTGGAGTCGGAGCCAGCCAGTGGGCGTGTA AGTGTGTTCTGCCACCTTCCTGGAGCTGCAGCTCCTCAATGAACATCTGTT GGGCCACTTAGAACAAGCCAAAAGCCTTCCTCCAGGCAGCCAAAAGCGAGG CAGCAGTCCCGAGAAGGAGCAGGACACACCCCGGGGGGAACCCCTGC AGTGCCCGAGAGCGAGAATGTTGCCACCAAAGAACAGAAGAAAAAGCCT CGAAGGGGGAGAAAACCCAAAGTGTCCAAAGCTGAGCAGCCTCTAGTCAT CGTGGAAGACAAGGAACCCACAGAGCAAGTGGCAGAGATCATTACCGAG GTCCCTCCGGATGAGCCTGTGAGTGCAACGCCAGATGAGCGGATCATGGA GCTGGTTCTGGGGAAGCTGGCCACCACCACCACTGACACCAGCTCGGTTC CAAAGTTCACCCATCATCAGAATAACACCATCACGCTCAAGAGGAGCTTAA TTCTCTCAAGCAGACACGGCATCCGGCGCAAGCTCATCAAACAGCTCGGG GAGCACAAGCGGGTTTACCAGTGCAATATCTGCAGCAAGATCTTCAGAAC

Supplementary Table 2

Table S2. Primary antibodies used in this study			
Antibody	Application	Company	Catalog numbers
PRDM15	1:1000 for WB	Proteintech	25590-1-AP
p-DNAPKcs	1:1000 for WB	Cell Signaling Technology	CST68716S
DNAPKcs	1:1000 for WB	Cell Signaling Technology	CST4602S
ATR	1:1000 for WB	Abcam	ab2905
p-ATR	1:1000 for WB	Cell Signaling Technology	CST2853s
ATM	1:1000 for WB	Cell Signaling Technology	CST92356
p-ATM	1:1000 for WB	Cell Signaling Technology	CST5883s
p-RPA2 S33	1:1000 for WB	Abcam	ab109394
RPA2	1:1000 for WB	Abcam	ab2175
p-Chk1	1:1000 for WB	Abcam	ab47318
Chk1	1:1000 for WB	Abcam	ab40866
p-Kap1	1:1000 for WB	Abcam	ab70369
Kap1	1:1000 for WB	Abcam	ab10483
p-Chk2	1:1000 for WB	Abcam	ab278548
Chk2	1:5000 for WB	Abcam	ab115149
Ki67	1:50 for IHC	Cell Signaling Technology	CST2586
TUNEL	1:50 for IHC	Abcam	ab76148
KU70	1:1000 for WB	Proteintech	10723-1-AP
KU80	1:1000 for WB	CST	2180T
Tubulin	1:1000 for WB	Proteintech.	66240-1-Ig
GAPDH (#4691)	1:1000 for WB	Cell Signaling Technology	CST2118

Supplementary Table 3

Table S3. The arrangement of the microarray													
1601633-C	1601633-B	1602525-C	1602525-A	1603607-C	1603607-A	1603636-C	1603636-B	1604075-C	1604075-B	1606290-C	1606290-A	1615650-C	1615650-A
1620085-C	1620085-A	1624897-C	1624897-A	1625315-C	1625315-A	1633945-C	1633945-A	1646208-C	1646208-A	1646660-C	1646660-A	1652033-C	1652033-A
1653049-C	1653049-B	1702354-C	1702354-A	1702355-C	1702355-B	1706728-C	1706728-A	1708922-C	1708922-B	1711665-C	1711665-A	1717951-C	1717951-A
1729136-C	1729136-A	1729708-C	1729708-B	1731059-C	1731059-A	1732571-C	1732571-A	1732778-C	1732778-A	1732973-C	1732973-B	1733162-C	1733162-A
1733984-C	1733984-B	1738756-C	1738756-A	1740381-C	1740381-A	1741704-C	1741704-A	1745498-C	1745498-A	1745500-C	1745500-A	1746492-C	1746492-A
1750720-C	1750720-A	1805291-C	1805291-A	1813075-C	1813075-A	1819253-C	1819253-A	1822657-C	1822657-B	1823592-C	1823592-A	1824742-C	1824742-A
1830217-C	1830217-A	1830219-C	1830219-A	1833794-C	1833794-A	1835552-C	1835552-A	1844466-C	1844466-A	1845889-C	1845889-A	1854080-C	1854080-A
1902365-C	1902365-A	1905036-C	1905036-A	1906333-C	1906333-A	1910571-C	1910571-A	1918302-C	1918302-A	1921877-C	1921877-A	1932245-C	1932245-A
1934718-C	1934718-A	1936658-C	1936658-A	1950589-C	1950589-A	1951028-C	1951028-A	1957396-C	1957396-A	2000674-C	2000674-A	2003508-C	2003508-A
2005440-C	2005440-A	2006087-C	2006087-A	2003918-C	2003918-A	2010614-C	2010614-A	2014082-C	2014082-A	1955568-A	2002214-A	2006425-A	2004944-A

Supplementary Table 4

Table S4. The H-score of each sample in the microarray					
Number	TRG	H score	Number	TRG	H score
A01	2	82.154	E15	1	/
A02	2	34.808	E16	1	95.76
A03	0	15.498	F01	2	106.97
A04	0	25.851	F02	2	141.565
A05	3	14.889	F03	1	/
A06	3	9.908	F04	1	183.217
A07		7.668	F05	0	84.731
A08		0	F06	0	142.763
A09	3	0	F07	3	181.47
A10	3	0.261	F08	3	140.791
A11	3	7.956	F09	1	165.674
A12	3	/	F10	1	192.651
A13	2	63.69	F11	2	207.063
A14	2	164.948	F12	2	162.073
A15	3	252.745	F13	2	152.136
A16	3	/	F14	2	228.397
B01	3	174.479	F15	1	219.139
B02	3	/	F16	1	194.7
B03	0	83.18	G01	2	183.929
B04	0	68.266	G02	2	192.297
B05	3	/	G03	1	201.304
B06	3	20	G04	1	153.499
B07	2	98.689	G05	2	/
B08	2	67.114	G06	2	106.257
B09	3	34.088	G07	1	103.25
B10	3	10.217	G08	1	146.544
B11	2	47.695	G09	2	166.053
B12	2	38.652	G10	2	157.746
B13	3	111.439	G11	2	146.118
B14	3	165.126	G12	2	130.877
B15	3	119.4	G13	2	184.044
B16	3	75.332	G14	2	157.177
C01	3	71.005	G15	3	235.514
C02	3	70.136	G16	3	167.368
C03	1	107.326	H01	2	178.451
C04	1	87.451	H02	2	174.938
C05	3	132.919	H03	2	116.28
C06	3	30.515	H04	2	92.409

C07	3	87.859	H05	3	120.84
C08	3	145.1	H06	3	107.785
C09	3	76.586	H07	2	158.254
C10	3	52.505	H08	2	136.23
C11	3	/	H09	2	133.801
C12	3	90.783	H10	2	/
C13	1	139.452	H11	0	/
C14	1	198.601	H12	0	179.762
C15	0	151.356	H13	1	138.589
C16	0	83.96	H14	1	196.638
D01	1	50.807	H15	0	242.857
D02	1	69.296	H16	0	221.931
D03	3	123.216	I01	2	200.309
D04	3	157.572	I02	2	192.551
D05	3	137.327	I03	2	95.365
D06	3	79.72	I04	2	71.869
D07	2	97.799	I05	2	115.003
D08	2	105.325	I06	2	136.151
D09		202.705	I07	2	138.39
D10		114.981	I08	2	149.162
D11	1	110.663	I09	3	166.192
D12	1	117.235	I10	3	126.299
D13	2	21.714	I11	1	109.224
D14	2	219.198	I12	1	105.473
D15	1	167.663	I13	3	155.664
D16	1	116.983	I14	3	111.037
E01	1	73.281	I15	3	236.162
E02	1	/	I16	3	210.47
E03	2	235.605	J01	0	192.011
E04	2	149.498	J02	0	170
E05	2	154.597	J03	2	218.595
E06	2	202.062	J04	2	154.693
E07	2	135.561	J05	2	104.443
E08	2	111.147	J06	2	139.091
E09	1	126.462	J07	3	103.983
E10	1	139.881	J08	3	127.55
E11	2	186.379	J09	1	167.763
E12	2	109.326	J10	1	136.751
E13	0	/	J11		153.377
E14	0	132.97	J12		106.075
			J13	2	151.035