Supplemental Table 1: Differentially expressed genes in the acquired radioresistant cells

Differential expression	Gene names	Count
Upregulated genes in HCT-116-R cells	AZGP1, TPI1, RPL7, B2M, FARSA, RPL7, FTH1, MCM3, RPL18, VDAC2, FAT1, LMAN2L, FAM168B, CS, TOX4, DVL1, PCDH1, GUCD1, CSNK2A1, EEF1A1, VDAC1, URGCP, ASS1, EIF6, FLII, FKBP8, HUWE1, S100A16, HMOX2, TUBA4A, USP39, VARS2, SIRT7, TMEM230, ILVBL, TSPAN9, EI24, GOLM1, BTG3, IL4R, LRP5, ALDH2, ANKRD17, FAM120A, TATDN2, CIT, ETV4, ANKFY1, NPTXR, PFN2, PRMT5	51
Upregulated genes in CX-1-R cells	CLCN3, AZGP1, RNPS1, LMNA, CSDE1, HDGF, XPO1, UBE2V1, PSMD12, MAPK1, TXLNA, MCM3, JPT2, NHS, MBNL1, EDC3, RPS10, PRRC2B, HIRA, MARS, INF2, PAICS, ZER1, PYCR1, DEK, H3F3A, DIMT1, CLCN3, CRK, SMAP2, DDOST, SEPT9, RTF2, SP3, PHF6, ATP5MC2, PPME1	37
Downregulated genes in HCT-116-R cells	HSPA8, PAIP2, MTAP, TSC22D1, TMBIM6, B2M, HSPD1, PFKM, EIF4A1, PODXL, CD109, SDC3, CALU, TP53I11, ARHGAP5, MORF4L2, ST6GAL1, WNT16, EIF2AK2, SLC52A2, TTI1, DNAJC14, SH3PXD2B, ERBB2, AKT1, COPS7A, VPS13B, TAF9, CNOT1, RPS3, PYCR1, SEC16A, KLF6, CBX1, PXN, HMGN2, EIF5A, ANXA1, ANT1, UAP1, PXN, GNS, CRIM1, ZNF264, CLTC, CYBRD1, NUP160, CDKN1A	47
Downregulated genes in CX-1-R cells	LGMN, TAGLN2, CS, PRSS2, PTGES3, TPI1, HIST1H2BF, EPS8, PAICS, MAST2, STAT6, HSPA9, TM4SF4, CCT3, HDGF, ST3GAL1, IRAK1, PUM1, CANX, G6PD, MORF4L2, PBXIP1, TPI1, CSDE1, LASP1, RNF41, SYT7, RPL18, G3BP2, TMEM59, GAK, SEC23B, KCTD20, PYCR1, PACSIN2, EIF4G1, RPS10-NUDT3, URGCP, TMEM164, CDC25B, HIST1H2BE, EXOC3, HSPA8, GATAD2A, RAVER1, MRPL10, MAGED1, MINK1, CAST, MDH1, HNRNPUL1, SLC25A38, HNRNPK, SMS, PCCB, COG5, CAP1, PEA15, PRMT5, ELK1, EIF4B, MTA1	61

Supplemental Table 2: The details of included datasets in CRC samples undergoing radiation

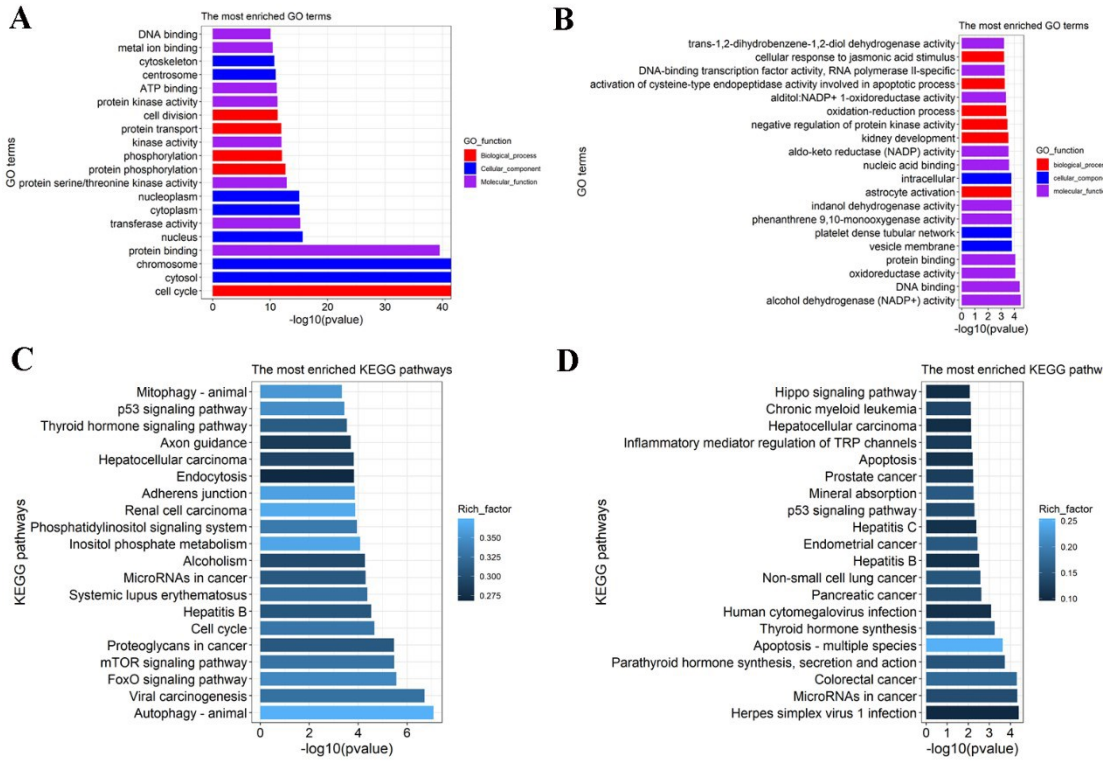
Dataset	Author	Country	Year	Platform	Sample type	Exp mean± Exp SD	Ctrl mean ± Ctrl SD
GSE60331	Verstraete M et al.	Belgium	2014	GPL15207	Tissue	7.857 ± 1.12	7.356 ± 1.082
GSE20298	Spitzner M et al.	Germany	2010	GPL4133	Cell lines	10.122 ± 2.010	10.402 ± 2.749
GSE43206	Jang S et al.	Korea	2012	GPL6244	Cell lines	7.550 ± 1.070	6.893 ± 0.853
GSE46862	Gim J et al.	Korea	2013	GPL6244	Tissue		
GSE97543	Emons G et al.	USA	2017	GPL13497	Cell lines	3.647 ±0.679	3.621 ±0.622
GSE150082	Sendoya JM et al.	Argentina	2020	GPL13497	Tissue		
GSE35452	Watanabe T et al.	Japan	2012	GPL570	Tissue	4.177 ± 1.234	3.884 ± 1.129
GSE119409	Yi H et al.	China	2018	GPL570	Tissue		

Supplemental Table 3: The details of included datasets in CRC samples versus normal tissue

Dataset	Author	Country	Year	Platform	Sample type	Exp mean± Exp SD	Ctrl mean ± Ctrl SD
GSE24514	Aaltonen LA et al.	Finland	2010	GPL96	Tissue	6.043 ± 1.140	4.816 ± 0.699
GSE49355	Del Rio M et al.	France	2013	GPL96	Tissue		
GSE68468	Mervi H et al.	USA	2015	GPL96	Tissue		
GSE77953	Frierson H Jr et al.	USA	2016	GPL96	Tissue		
GSE110223	Vlachavas E et al.	Greece	2018	GPL96	Tissue		
GSE54986	Ding L et al.	China	2014	GPL10558	Tissue	7.267 ± 0.760	6.243 ± 0.277
GSE75548	Wei J et al.	China	2015	GPL10558	Tissue		
GSE106582	Andrieux G et al.	Germany	2017	GPL10558	Tissue		
GSE81558	Sayagues JM et al.	Spain	2016	GPL15207	Tissue	7.704 ± 1.006	5.922 ± 0.518
GSE15781	Paulssen RH et al.	Norway	2009	GPL2986	Tissue	13.461 ±2.147	12.471 ± 0.727
GSE20842	Gaedcke J et al.	Germany	2010	GPL4133	Tissue	11.900 ± 1.165	8.690 ± 0.536
GSE24713	LaPointe LC et al.	Australia	2010	GPL11060	Tissue	9.036 ± 0.470	8.378 ± 0.424
GSE25071	Ågesen TH et al.	Norway	2010	GPL2986	Tissue	15.778 ± 1.910	12.310 ± 0.840
GSE28000	Jovov B et al.	USA	2011	GPL1708	Tissue	0.930 ± 0.203	1.207 ± 0.519
GSE44076	Solé X et al.	Spain	2013	GPL13667	Tissue	7.600 ± 1.324	4.805 ± 0.712
GSE47063	Uribe-Lewis S et al.	United Kingdom	2013	GPL6102	Tissue	8.545 ± 1.218	6.424 ± 0.533
GSE87211	Hu Y et al.	USA	2016	GSE87211	Tissue	11.309 ± 1.300	8.847 ± 0.672
GSE103512	Brouwer-Visser J et al.	USA	2017	GPL13158	Tissue	7.673 ± 0.488	7.002 ± 0.409
GSE113513	Peng J et al.	China	2018	GPL15207	Tissue	7.117 ± 0.982	5.550 ± 0.410
GSE115261	Kwok ZH et al.	Singapore	2018	GSE115261	Tissue	7.144 ± 0.962	5.031 ± 0.412
GSE141174	Hammarströ	Sweden	2019	GPL6104	Tissue	6.902 ±	6.871 ±

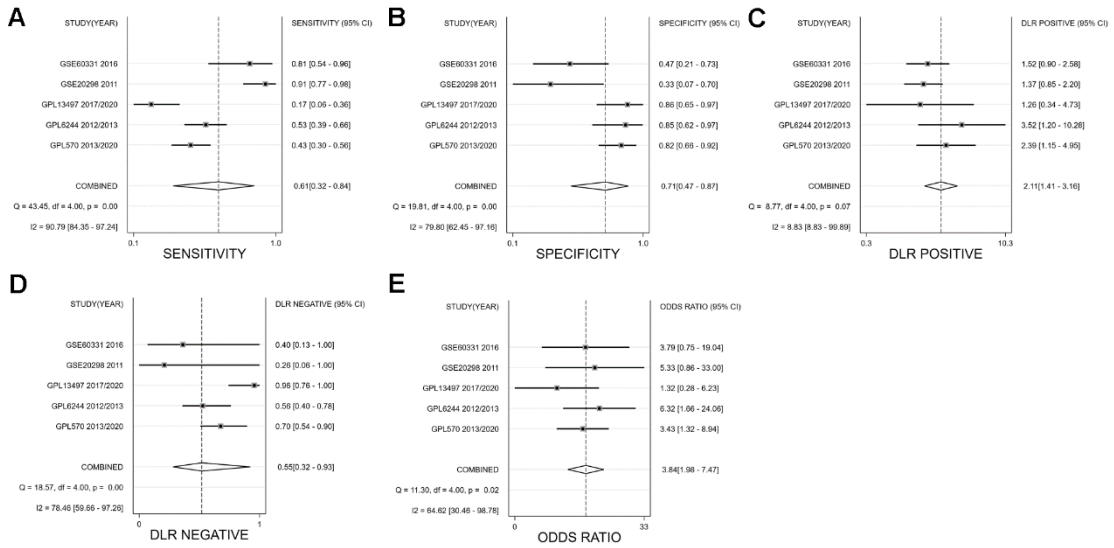
	m S et al.					0.748	0.358
GSE156355	Sun H et al.	China	2020	GPL21185	Tissue	11.085 ± 0.435	7.894 ± 0.228
TCGA+CTEx	N/A	USA	2017	IIIuminaHiseq	Tissue	4.644 ± 1.475	1.817 ± 0.778

Supplemental Figure 1. GO and KEGG enrichment analyses of differential expressed genes in the radioresistant cellular model



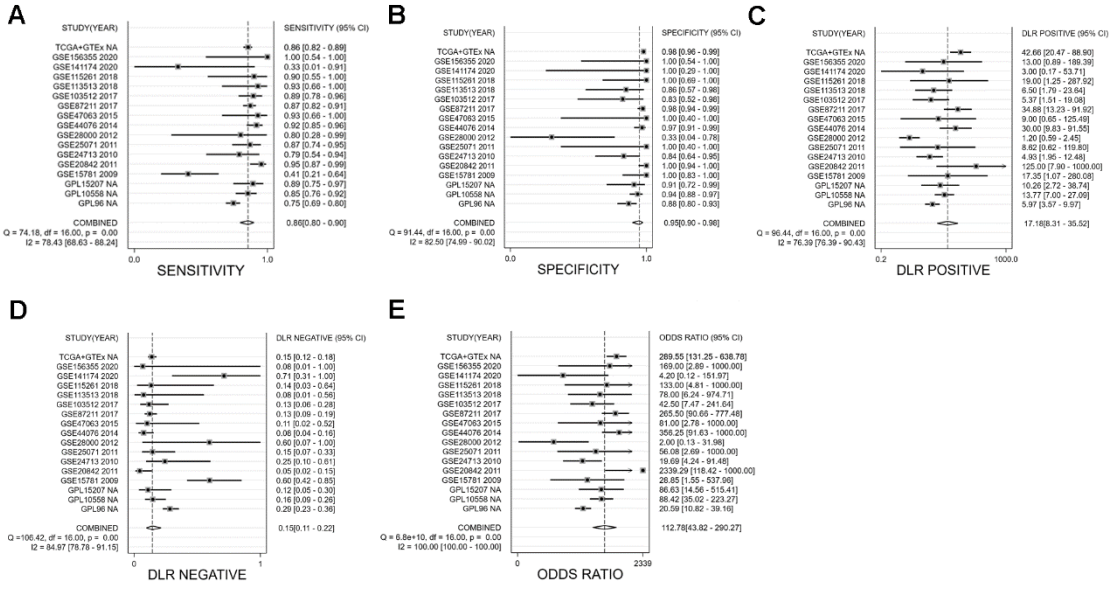
(A) histogram of GO enrichment of upregulated genes in HCT-116-R versus HCT-116 cells; (B) histogram of GO enrichment of upregulated genes in CX-1-R versus CX-1 cells; (C) histogram of KEGG pathway of upregulated genes in HCT-116-R versus HCT-116 cells; (D) histogram of KEGG pathway of upregulated genes in CX-1-R versus CX-1 cells.

Supplemental Figure 2. Diagnostic meta-analysis of AZGP1 expression in radioresistant versus radiosensitive CRC samples



(A) diagnostic sensitivity; (B) diagnostic specificity; (C) positive likelihood ratio; (D) negative likelihood ratio; (E) diagnostic odds ratio.

Supplemental Figure 3. Diagnostic meta-analysis of AZGP1 expression in CRC tissue and normal colorectal tissue



(A) diagnostic sensitivity; (B) diagnostic specificity; (C) positive likelihood ratio; (D) negative likelihood ratio; (E) diagnostic odds ratio.