

Table S1 Clinical pathological parameters of CRC

Clinical	Characteristics	TCGA		GSE39582		NJCRC	
		N	Percent	N	Percent	N	Percent
Age (years)	Average	64.9		66.9		58.7	
Gender	Female	187	46.29%	260	44.91%	25	44.64%
	Male	217	53.71%	319	55.09%	31	55.36%
Stage	I	64	15.84%	38	6.56%	2	3.57%
	II	158	39.11%	269	46.46%	29	51.79%
	III	121	29.95%	209	36.10%	24	42.86%
	IV	61	15.10%	61	10.54%	1	1.78%
MMR	pMMR	330	81.68%	460	79.45%		
	dMMR	59	14.60%	73	12.61%		
	unknown	15	3.71%	46	7.94%		

CRC, colorectal cancer; TCGA, The Cancer Genome Atlas; NJCRC, Nanjing Colorectal Cancer; MMR, mismatch repair.

Table S2 PANoptosis-related genes

KEGG_NECROPTOSIS	REACTOME_PYROPTOSIS	KEGG_APOPTOSIS	HALLMARK_APOPTOSIS	REACTOME_APOPTOSIS
TNF	BAK1	CASP10	CASP3	BAD
TNFRSF1A	TP63	CASP9	CASP9	CFLAR
TRADD	CHMP2B	CASP8	DFFA	PSMB1
TRAF2	BAX	CASP7	CASP7	PSMC4
TRAF5	GZMB	CHUK	CFLAR	BID
RIPK1	CHMP4B	PRKAR2B	BIRC3	VIM
BIRC2	GSDMD	TNF	PMAIP1	FAS
BIRC3	GSDME	TNFSF10	CASP8	BAK1
XIAP	IL1A	BIRC3	JUN	DAPK2
RBCK1	CHMP3	XIAP	BCL2L11	CDH1
RNF31	IRF1	PPP3R2	MCL1	PSMA4
SHARPIN	IL1B	PPP3CC	IL1B	DSG
SPATA2L	CHMP2A	PPP3R1	SPTAN1	CASP8
SPATA2	CASP1	MYD88	DIABLO	PRKCQ
CYLD	CASP5	FADD	BAX	ROCK1
FADD	TP53	CFLAR	BIK	PSME4
CASP8	CHMP7	RIPK1	IL1A	ARHGAP10
CFLAR	IL18	BAD	BID	TP63
RIPK3	CASP3	IRAK4	CDKN1A	TP73
CYBB	CHMP4C	BID	GADD45A	PKP1
CAMK2A	IRF2	BAX	DDIT3	BAX
CAMK2D	CYCS	IKKB	CDKN1B	PSMC5
CAMK2B	CHMP6	CASP6	TNF	ADD1
CAMK2G	HMGB1	IL1A	GSN	DNM1L
SLC25A4	CASP4	AKT1	TNFSF10	PPP1R13B
SLC25A5	ELANE	CASP3	CASP6	DYNLL1
SLC25A6	CHMP4A	AKT2	SQSTM1	PSME1
SLC25A31		TNFRSF1A	FASLG	CLSPN
PPID		AKT3	EGR3	PSMD5
VDAC1		CHP2	CD44	DSP
VDAC2		ATM	FAS	PSMD8
VDAC3		ENDOG	IL18	MAPK1
GLUD2		NFKB1	IGFBP6	GZMB
GLUD1		NFKBIA	PRF1	PSMC6
GLUL		CAPN2	DAP	PSMA3
PYGL		PIK3R5	CCND1	PSMC1
PYGM		IKBK	BTG3	PSMB5
PYGB		CAPN1	F2R	ACIN1
MAPK8		IL3RA	SATB1	PSMA6
MAPK10		IL3	BNIP3L	PSME2
MAPK9		RELA	CASP4	PSMA7
FTH1		ENDOD1	TNFRSF12A	E2F1
FTL		APAF1	CREBBP	PSMD10
PLA2G4E		PRKX	RHOB	XIAP
PLA2G4A		CSF2RB	GPX3	BMX
JMJD7-PLA2G4B		TNFRSF10A	PDGFRB	STK24
PLA2G4B		TRAF2	TSPO	TRADD
PLA2G4C		TNFRSF10D	CCND2	MAPK3
PLA2G4D		NGF	XIAP	PSMD7
PLA2G4F		TNFRSF10B	TIMP1	TJP1
ALOX15		TNFRSF10C	CTNNB1	BMF
CAPN1		MAP3K14	IRF1	GSDMD
CAPN2		IL1RAP	HSPB1	TNFRSF10A
SMPD1		IL1B	ADD1	AKT2
MLKL		IRAK2	TIMP2	BBC3
PGAM5		IL1R1	BTG2	CARD8
DNM1L		IRAK1	TIMP3	GSDME
NLRP3		TRADD	LEF1	PSMA2
PYCARD		PIK3R3	CASP1	MAPK8
CASP1		BCL2	GPX1	UNC5B
IL1B		BCL2L1	BCL10	PSMD3
CHMP2A		BIRC2	IGF2R	SEPTIN4
CHMP2B		IRAK3	CDC25B	KPNB1
CHMP3		PRKACA	AIFM3	C1QBP
RNF103-CHMP3		PRKACB	CD38	PSMD11
CHMP4B		PRKACG	PPP3R1	YWHAE
CHMP4A		PPP3CB	HGF	BIRC2
CHMP6		TP53	CLU	PSMD9
VPS4B		PPP3CA	ATF3	LMNB1
VPS4A		PIK3CA	LGALS3	UNC5A
CHMP1B		PIK3CB	LUM	KPNA1
CHMP1A		FAS	LMNA	TFDP2
CHMP5		DFFA	GADD45B	PSMD14
CHMP7		CYCS	CDK2	AKT3
TRPM7		DFFB	IFNB1	FASLG
IL1A		PIK3CD	RETSAT	TJP2
IL33		PRKAR1A	SMAD7	APAF1
HMGB1		FASLG	SOD1	TNFRSF10B
TNFSF10		PRKAR2A	PTK2	PPP3CC
TNFRSF10A		PRKAR1B	ENO2	TNFSF10
TNFRSF10B		EXOG	HMOX1	H1-3
FASLG		PIK3CG	IER3	H1-1
FAS		AIFM1	BCL2L10	PSMF1
FAF1		NTRK1	CD2	PSMB2
IFNA1		PIK3R1	GCH1	TRAF2
IFNA2		PIK3R2	MMP2	TICAM1
IFNA4		CHP1	VDAC2	SEM1
IFNA5			TAP1	YWHAH
IFNA6			PLAT	PSMA1
IFNA7			IFNGR1	PSME3
IFNA8			APP	CASP9
IFNA10			BRCA1	YWHAQ
IFNA13			ROCK1	STK26
IFNA14			PSEN1	DSG3
IFNA16			DCN	DSG1
IFNA17			PSEN2	APC
IFNA21			SOD2	DBNL
IFNB1			BMF	NMT1
IFNG			EREG	TLR4
IFNAR1			KRT18	PSMB7
IFNAR2			TGFB2	RIPK1
IFNGR1			RELA	UACA
IFNGR2			WEE1	CASP6
JAK1			RARA	TP53
JAK2			CD14	PMAIP1
JAK3			CD69	AKT1
TYK2			PEA15	PSMB6
STAT1			DNAJC3	PSMA5
STAT2			CASP2	TP53BP2
STAT3			CTH	RPS27A
STAT4			PLCB2	CDKN2A
STAT5A			BMP2	GSN
STAT5B			HMGB2	GAS2
STAT6			PLPPR4	APIP
IRF9			H1-0	UBC
EIF2AK2			TGFBR3	BCL2L11
TLR4			EBP	LY96
TICAM2			TXNIP	PSMA8
TICAM1			ANKH	APPL1
TLR3			RHOT2	PSMD4
ZBP1			CYLD	PSMB4
USP21			GSTM1	DFFA
SQSTM1			GSR	LMNA
HSP90AA1			BGN	PSMC2
HSP90AB1			BCL2L1	OMA1
TNFAIP3			GNA15	PSMD6
PARP2			MGMT	PRKCD
PARP3			PPT1	HMGB2
PARP4			F2	CASP3
BID			IL6	YWHAZ
BAX			SC5D	CASP7
AIFM1			IFITM3	PSMC3
H2AX			RNASEL	YWHAB
H2AC20			EMP1	DAPK3
H2AC12			CAV1	CTNNB1
H2AC1			DNM1L	FADD
H2AW			ANXA1	H1-4
H2AB3			TOP2A	FNTA
H2AC8			ISG20	STAT3
H2AC4			SLC20A1	PTK2
MACROH2A2			MADD	DFFB
MACROH2A1			PPP2R5B	AVEN
H2AC19			BCAP31	YWHAG
H2AJ			ERBB3	UBB
H2AB1			NEDD9	CD14
H2AC17			SAT1	BCL2L1
H2AC18			PDCD4	BCL2
H2AC11			BCL2L2	CYCS
H2AC21			FEZ1	PSMD1
H2AZ2			ERBB2	PSMD2
H2AC7			DNAJA1	SFN
H2AZ1			DAP3	PLEC
H2AC15			DPYD	MAGED1
H2AC6			NEFH	PAK2
H2AC13			PAK1	SATB1
H2AC14			FDXR	DIABLO
H2AC16			GPX4	H1-5
H2AB2			ETF1	PSMD13
PPIA			CCNA1	BCAP31
BCL2			GUCY2D	MAPT
			AVPR1A	DCC
				H1-2
				H1-0
				HMGB1
				DAPK1
				PSMD12
				SPTAN1
				OCLN
				TFDP1
				OPA1
				PSMB8
				PSMB10
				PPP3R1
				UBA52
				PSMB11
				PSMB9
				TICAM2
				DYNLL2
				PSMB3

**Table S3** 88 PANoptosis-related differentially expressed genes.

Gene	logFC	AveExpr	t	P value	adj.P.Val	B	Type
<i>ELANE</i>	-2.791	0.875	-25.323	2.15E-85	9.57E-83	184.116	Down
<i>RETSAT</i>	-1.799	11.253	-20.818	6.53E-66	1.45E-63	139.391	Down
<i>PDCD4</i>	-1.833	11.206	-20.265	1.70E-63	2.51E-61	133.848	Down
<i>TNFRSF12A</i>	2.461	9.771	19.579	1.70E-60	1.89E-58	126.958	Up
<i>ENDOD1</i>	-1.659	10.134	-18.849	2.65E-57	2.35E-55	119.631	Down
<i>HSP90AB1</i>	1.094	14.878	18.138	3.33E-54	2.47E-52	112.517	Up
<i>CDC25B</i>	2.002	11.281	17.089	1.18E-49	7.49E-48	102.078	Up
<i>CCND1</i>	1.599	12.073	17.045	1.83E-49	1.02E-47	101.641	Up
<i>CASP7</i>	-1.590	10.476	-16.180	9.60E-46	4.74E-44	93.108	Down
<i>SMPD1</i>	-1.822	9.152	-16.166	1.10E-45	4.88E-44	92.973	Down
<i>E2F1</i>	1.621	9.047	15.311	4.77E-42	1.76E-40	84.631	Up
<i>PMAIP1</i>	1.812	7.828	14.907	2.38E-40	8.15E-39	80.735	Up
<i>TOP2A</i>	1.480	11.649	14.743	1.16E-39	3.62E-38	79.157	Up
<i>TIMP1</i>	1.849	12.161	14.737	1.22E-39	3.62E-38	79.107	Up
<i>GSN</i>	-2.000	12.619	-14.558	6.87E-39	1.91E-37	77.389	Down
<i>PYGM</i>	-3.664	3.696	-14.437	2.18E-38	5.69E-37	76.240	Down
<i>BMX</i>	-3.422	3.743	-14.202	2.06E-37	5.09E-36	74.003	Down
<i>MAPK3</i>	-1.153	11.276	-13.768	1.26E-35	2.69E-34	69.911	Down
<i>GPX3</i>	-2.677	8.888	-13.227	1.98E-33	3.82E-32	64.879	Down
<i>CHP2</i>	-5.476	7.949	-13.215	2.21E-33	4.09E-32	64.771	Down
<i>BRCA1</i>	1.251	8.998	12.935	2.92E-32	4.80E-31	62.204	Up
<i>CD44</i>	1.157	12.573	12.678	3.09E-31	4.74E-30	59.856	Up
<i>RNASEL</i>	-1.235	8.113	-12.621	5.20E-31	7.69E-30	59.340	Down
<i>MAPK10</i>	-2.446	4.265	-12.304	9.13E-30	1.23E-28	56.492	Down
<i>TRAF5</i>	1.408	9.908	12.293	1.01E-29	1.32E-28	56.387	Up
<i>PRKACB</i>	-2.214	9.906	-12.284	1.10E-29	1.39E-28	56.307	Down
<i>TNFSF10</i>	-1.364	10.455	-12.265	1.30E-29	1.61E-28	56.138	Down
<i>TLR3</i>	-2.143	6.991	-12.043	9.48E-29	1.14E-27	54.166	Down
<i>CAPN2</i>	-1.158	12.213	-11.908	3.15E-28	3.58E-27	52.974	Down
<i>IGFBP6</i>	-2.293	7.072	-11.867	4.53E-28	5.02E-27	52.612	Down
<i>BMP2</i>	-2.150	8.223	-11.840	5.79E-28	6.28E-27	52.367	Down
<i>CAMK2A</i>	-1.883	2.381	-11.658	2.88E-27	3.05E-26	50.773	Down
<i>LEF1</i>	2.092	7.659	11.644	3.25E-27	3.36E-26	50.653	Up
<i>TNFRSF10B</i>	1.175	10.646	11.363	3.78E-26	3.65E-25	48.216	Up
<i>BCL2</i>	-1.820	7.375	-11.266	8.71E-26	8.23E-25	47.389	Down
<i>HMOX1</i>	-1.644	9.065	-11.230	1.19E-25	1.10E-24	47.080	Down
<i>IFITM3</i>	1.341	12.986	10.861	2.80E-24	2.49E-23	43.944	Up
<i>LGALS3</i>	-1.217	13.923	-10.809	4.32E-24	3.76E-23	43.514	Down
<i>CLU</i>	-2.547	9.965	-10.760	6.55E-24	5.38E-23	43.102	Down
<i>PRKAR2B</i>	-2.319	6.746	-10.713	9.77E-24	7.88E-23	42.705	Down
<i>SLC20A1</i>	-1.018	10.318	-10.652	1.63E-23	1.29E-22	42.198	Down
<i>EMP1</i>	-1.735	11.063	-10.525	4.69E-23	3.59E-22	41.148	Down
<i>TXNIP</i>	-1.545	13.028	-10.393	1.41E-22	1.05E-21	40.058	Down
<i>PKP1</i>	3.056	6.523	10.392	1.42E-22	1.05E-21	40.053	Up
<i>CAV1</i>	-1.759	9.626	-10.355	1.92E-22	1.38E-21	39.749	Down
<i>BGN</i>	2.304	11.694	10.303	2.96E-22	2.09E-21	39.321	Up
<i>CLSPN</i>	1.415	6.997	10.046	2.41E-21	1.60E-20	37.243	Up
<i>CDKN1A</i>	-1.311	11.488	-9.899	7.92E-21	4.82E-20	36.064	Down
<i>FAS</i>	-1.431	8.162	-9.610	7.96E-20	4.44E-19	33.779	Down
<i>DPYD</i>	-2.159	6.818	-9.389	4.50E-19	2.30E-18	32.064	Down
<i>PIK3CG</i>	-2.212	5.419	-9.273	1.11E-18	5.56E-18	31.171	Down
<i>CASP5</i>	-2.306	6.192	-9.126	3.43E-18	1.62E-17	30.054	Down
<i>IRAK2</i>	1.427	7.801	8.925	1.58E-17	7.25E-17	28.542	Up
<i>DCN</i>	-2.082	11.538	-8.770	5.07E-17	2.25E-16	27.393	Down
<i>MAPT</i>	-2.324	4.414	-8.732	6.69E-17	2.94E-16	27.118	Down
<i>FEZ1</i>	-1.484	6.398	-8.542	2.72E-16	1.16E-15	25.731	Down
<i>CAMK2B</i>	-1.906	2.152	-8.472	4.54E-16	1.92E-15	25.226	Down
<i>NEFH</i>	-1.594	3.541	-8.394	8.05E-16	3.37E-15	24.661	Down
<i>TP73</i>	1.856	5.178	8.257	2.16E-15	8.78E-15	23.689	Up
<i>CCNA1</i>	-1.023	0.835	-8.248	2.30E-15	9.30E-15	23.623	Down
<i>DSG1</i>	1.580	2.663	8.194	3.38E-15	1.34E-14	23.244	Up
<i>CD14</i>	-1.336	9.636	-7.663	1.36E-13	4.96E-13	19.602	Down
<i>GAS2</i>	1.608	4.735	7.627	1.74E-13	6.22E-13	19.362	Up
<i>NEDD9</i>	-1.026	10.299	-7.508	3.87E-13	1.36E-12	18.574	Down
<i>IL1A</i>	1.984	4.170	7.421	6.95E-13	2.39E-12	17.998	Up
<i>DSG3</i>	3.188	5.279	7.404	7.77E-13	2.65E-12	17.889	Up
<i>CD69</i>	-1.614	5.580	-7.220	2.60E-12	8.76E-12	16.700	Down
<i>CDKN2A</i>	1.613	5.805	6.932	1.65E-11	5.38E-11	14.888	Up
<i>TNFRSF10C</i>	1.222	5.258	6.891	2.14E-11	6.87E-11	14.634	Up
<i>CSF2RB</i>	-1.512	7.555	-6.876	2.35E-11	7.50E-11	14.541	Down
<i>IER3</i>	1.016	11.834	6.699	7.06E-11	2.21E-10	13.462	Up
<i>GZMB</i>	1.768	6.751	6.629	1.09E-10	3.37E-10	13.040	Up
<i>STAT4</i>	-1.212	4.720	-6.553	1.73E-10	5.21E-10	12.586	Down
<i>PIK3R5</i>	-1.315	6.203	-6.522	2.08E-10	6.16E-10	12.403	Down
<i>LY96</i>	-1.274	5.043	-6.483	2.62E-10	7.66E-10	12.177	Down
<i>PIK3CD</i>	-1.197	7.276	-6.464	2.94E-10	8.48E-10	12.064	Down
<i>AIFM3</i>	-1.640	8.646	-6.427	3.68E-10	1.04E-09	11.844	Down
<i>BCL2L10</i>	-1.332	3.154	-6.389	4.61E-10	1.30E-09	11.624	Down
<i>TGFBR3</i>	-1.110	8.584	-5.939	6.20E-09	1.60E-08	9.086	Down
<i>CD38</i>	-1.575	4.840	-5.617	3.62E-08	8.54E-08	7.371	Down
<i>DAPK1</i>	-1.276	8.158	-5.467	8.02E-08	1.85E-07	6.597	Down
<i>ARHGAP10</i>	-1.132	6.940	-5.441	9.20E-08	2.11E-07	6.464	Down
<i>AKT3</i>	-1.042	7.316	-5.338	1.57E-07	3.57E-07	5.944	Down
<i>F2</i>	1.322	1.607	5.331	1.63E-07	3.65E-07	5.910	Up
<i>CYBB</i>	-1.045	8.959	-4.870	1.61E-06	3.23E-06	3.699	Down
<i>GSTM1</i>	-2.264	4.627	-4.670	4.10E-06	8.13E-06	2.798	Down
<i>EREG</i>	1.802	8.633	4.600	5.68E-06	1.09E-05	2.486	Up
<i>PLA2G4A</i>	-1.204	6.613	-3.765	0.000191342	0.000326753	-0.862	Down