

Table S1 Genes list of pyroptosis related genes.

Pyroptosis related genes					
Abl1	Gsdmc	Prtn3	Chmp6	Mmp1a	Tlr2
Adora1	Gsdmc2	Pstpip2	Chmp7	Mnda	Tlr3
Adora2a	Gsdmc3	Pten	Cited2	Mndal	Tlr4
Adora2b	Gsdmc4	Ptgs2	Cnr1	Mpeg1	Tnf
Adora3	Gsdmd	Ptpn11	Crtac1	Mst1	Tnfaip3
Ager	Gsdme	Ptx3	Ctsg	Naip2	Tnfrsf11b
AI607873	Gsk3b	Pycard	Ctsl	Ndufa13	Tradd
Aim2	Gzma	Pydc3	Cycs	Nek7	Traf2
Ano6	Gzmb	Pydc4	Ddx3x	Nfe2l2	Traf3
Anxa1	Hdac6	Pyhin1	Dhx9	Nfkb1	Traf6
Apip	Hmgb1	Rbbp4	Dnmt1	Ninj1	Trem1
Apoa1	Hsp90aa1	Rbbp7	Dnmt3a	Nlrc4	Trem2
Apoe	Htra1	Rbck1	Dnmt3b	Nlrp1b	Trim21
Atg5	Icam1	Ripk1	Dpp8	Nlrp2	Trim24
Atp6ap1	Ifi203	Ripk3	Dpp9	Nlrp3	Trim25
Bak1	Ifi204	Rnf31	Drd2	Nlrp6	Trim31
Bax	Ifi205	Rps27a	Duox1	Nlrp9b	Trp53
BC094916	Ifnb1	Scaf11	Eed	Nlrx1	Trp63
Birc2	Ikbke	Sdhb	Eef2k	Nod1	Tslp
Birc3	Ikzf1	Serpinb1a	Elane	Nod2	Txnip
Bnip3	Il17a	Sesn2	Elavl1	Nr1h2	Ubc
Bsg	Il18	Setd7	Epha2	Osm	Ubr2
Camp	Il1a	Sez6l2	Ets1	P2rx7	Ucp1
Capn1	Il1b	Siglec15	Ezh2	Pak2	Ulk1
Casp1	Il1f8	Sirt1	Fadd	Parp1	Usf2
Casp3	Il1f9	Slc16a4	Fasl	Pcsk9	Usp14
Casp4	Il6	Slc30a7	Fat1	Pdcd6ip	Usp18

Casp6	Irf1	Smim1	Fgf21	Pecam1	Usp25
Casp7	Irf2	Snip1	Fgf5	Pgf	Usp47
Casp8	Irf3	Snrpn	Fmr1	Pif1	Usp8
Casp9	Irf9	Socs1	Fndc4	Pkm	Usp9x
Cd274	Jun	Sqstm1	Fndc5	Pkn2	Uts2
Cdc37	Kif23	Stat2	Foxo3	Plcg1	Vcam1
Cdk1	LOC102639543	Stat3	Foxp3	Pola1	Vdr
Cdk9	Malt1	Stk4	Fpr2	Pola2	Vegfa
Cebpb	Mapk11	Suz12	Gbp5	Pparg	Vim
Cep55	Mapk14	Syvn1	Gja1	Prdm1	Vtn
Chmp2a	Mefv	Tcea3	Gm10053	Prf1	Ythdf2
Chmp2b	Mettl14	Tet2	Gm16340	Prim1	Ywhae
Chmp3	Mettl3	Tfam	Gm7866	Prim2	Ywhaz
Chmp4b	Mki67	Tfg	Gpx4	Prkaca	Zbp1
Chmp4c	Mkl1	Tirap	Gsdma	Prmt5	Zdhhc1

Table S2 GSEA analysis of GSE60670 dataset between NP and Control groups

Description	Setsize	Enrichmentscore	NES	p.adjust	qvalue
RUTELLA_RESPONSE_T O_HGF_VS_CSF2RB_AN D_IL4_UP	374	0.398	2.013	0.002	0.001
LU_IL4_SIGNALING WP_OVERVIEW_OF_PR OINFLAMMATORY_AN D_PROFIBROTIC_MEDIA TORS	85	0.482	2.001	0.001	0.001
RUTELLA_RESPONSE_T O_CSF2RB_AND_IL4_DN	287	0.403	1.983	0.001	0.002
NEMETH_INFLAMMATO RY_RESPONSE_LPS_UP WP_CELLS_AND_MOLE CULES_INVOLVED_IN_L OCAL_ACUTE_INFLAM MATORY_RESPONSE	82	0.466	1.921	0.006	0.005
WP_INFLAMMATORY_B	16	0.668	1.898	0.044	0.039
	40	0.530	1.892	0.023	0.020

OWEL_DISEASE_SIGNA LING					
FULCHER_INFLAMMAT ORY_RESPONSE_LECTI N_VS_LPS_DN	382	0.370	1.873	0.002	0.001
VILIMAS_NOTCH1_TAR GETS_DN	29	0.554	1.841	0.048	0.042
HINATA_NFKB_TARGET S_KERATINOCYTE_UP	80	0.442	1.813	0.011	0.010

Table S3 GSEA analysis of GSE60670 dataset between high and low riskscore groups.

Description	Setsize	Enrichmentscore	NES	p.adjust	qvalue
REACTOME_REGULATION_OF_ TP53_EXPRESSION_AND_DEGR ADATION	34	0.676	2.145	0.002	0.002
REACTOME_PYROPTOSIS	23	0.691	2.004	0.008	0.007
REACTOME_REGULATION_OF_ TP53_ACTIVITY	147	0.477	1.951	0.001	0.001
SCHOEN_NFKB_SIGNALING	34	0.596	1.893	0.016	0.014
REACTOME_REGULATION_OF_ TP53_ACTIVITY_THROUGH_PH OSPHORYLATION	82	0.497	1.866	0.005	0.004
RUTELLA_RESPONSE_TO_CSF2 RB_AND_IL4_UP	310	0.414	1.844	0.001	0.001
HINATA_NFKB_TARGETS_KER ATINOCYTE_UP	80	0.492	1.838	0.007	0.006
RUTELLA_RESPONSE_TO_HGF_ VS_CSF2RB_AND_IL4_UP	374	0.404	1.829	0.001	0.001
REACTOME_TP53_REGULATES_ TRANSCRIPTION_OF_ADDITION AL_CELL_CYCLE_GENES_WHO SE_EXACT_ROLE_IN_THE_P53_ PATHWAY_REMAIN_UNCERTAI N	19	0.653	1.807	0.047	0.039
REACTOME_TRANSCRIPTIONA L_REGULATION_BY_TP53	320	0.358	1.597	0.005	0.004

Table S4 miRNA - mRNA interaction network nodes.

mRNA	miRNA	mRNA	miRNA
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Casp8	mmu-miR-466k	Ulk1	mmu-miR-302a-5p
Casp8	mmu-miR-466l-5p	Ulk1	mmu-miR-6383
Casp8	mmu-miR-466d-5p	Ulk1	mmu-miR-466l-5p
Casp8	mmu-miR-466i-5p	Ulk1	mmu-miR-17-5p
Casp8	mmu-miR-6903-3p	Ulk1	mmu-miR-20b-5p
Casp8	mmu-miR-6946-5p	Ulk1	mmu-miR-93-5p
Casp8	mmu-miR-466m-3p	Ulk1	mmu-miR-106a-5p
Casp8	mmu-miR-466o-3p	Ulk1	mmu-miR-503-3p
Casp8	mmu-miR-671-5p	Ulk1	mmu-miR-3065-3p
Casp8	mmu-miR-465b-5p	Ulk1	mmu-miR-128-3p
Casp8	mmu-miR-465c-5p	Ulk1	mmu-miR-467f
Casp8	mmu-miR-465a-5p	Ulk1	mmu-miR-6539
Casp8	mmu-miR-465d-5p	Ulk1	mmu-let-7c-1-3p
Casp8	mmu-miR-7665-5p	Ulk1	mmu-miR-6900-5p
Casp8	mmu-miR-6976-5p	Ulk1	mmu-miR-669k-3p
Casp8	mmu-miR-7074-5p	Ulk1	mmu-miR-669h-3p
Casp8	mmu-miR-297c-5p	Ulk1	mmu-miR-6371
Il1b	mmu-miR-466l-3p	Ulk1	mmu-miR-7021-5p
Il1b	mmu-miR-297a-3p	Ulk1	mmu-miR-3093-3p
Il1b	mmu-miR-669d-3p	Ulk1	mmu-miR-425-5p
Il1b	mmu-miR-466e-3p	Ulk1	mmu-miR-489-3p
Il1b	mmu-miR-297b-3p	Ulk1	mmu-miR-6917-5p
Il1b	mmu-miR-466d-3p	Ulk1	mmu-miR-6903-3p
Il1b	mmu-miR-466a-3p	Ulk1	mmu-miR-7226-5p
Il1b	mmu-miR-297c-3p	Ulk1	mmu-miR-350-3p
Il1b	mmu-miR-467g	Ulk1	mmu-miR-3083-5p
Il1b	mmu-miR-3473f	Ulk1	mmu-miR-1943-5p
Il1b	mmu-miR-5101	Ulk1	mmu-miR-7226-3p
Il1b	mmu-miR-6932-3p	Usp47	mmu-miR-325-3p

Il1b	mmu-miR-26b-3p	Usp47	mmu-miR-697
Il1b	mmu-miR-26a-2-3p	Usp47	mmu-miR-12187-3p
Il1b	mmu-miR-7039-3p	Usp47	mmu-miR-6398
Il1b	mmu-miR-12187-3p	Usp47	mmu-let-7a-2-3p
Il1b	mmu-miR-3099-5p	Usp47	mmu-miR-101a-3p
Il1b	mmu-miR-7064-5p	Usp47	mmu-miR-212-5p
Il1b	mmu-miR-6983-3p	Usp47	mmu-miR-466l-3p
Tlr4	mmu-miR-7027-5p	Usp47	mmu-miR-7068-5p
Tlr4	mmu-miR-7683-3p	Usp47	mmu-miR-1960
Tlr4	mmu-miR-6951-5p	Usp47	mmu-miR-138-5p
Tlr4	mmu-miR-7225-3p	Usp47	mmu-miR-340-5p
Tlr4	mmu-miR-7010-5p	Usp47	mmu-miR-1961
Tlr4	mmu-miR-542-3p	Usp47	mmu-let-7k
Tlr4	mmu-miR-669c-3p	Usp47	mmu-let-7e-5p
Tlr4	mmu-miR-222-5p	Usp47	mmu-miR-98-5p
Tlr4	mmu-miR-331-3p	Usp47	mmu-let-7c-5p
Ulk1	mmu-miR-466i-5p	Usp47	mmu-let-7b-5p
Ulk1	mmu-miR-466d-5p	Usp47	mmu-let-7f-5p
Ulk1	mmu-miR-466k	Usp47	mmu-let-7a-5p
Ulk1	mmu-miR-26b-5p	Usp47	mmu-miR-30d-5p
Ulk1	mmu-miR-26a-5p	Usp47	mmu-miR-30c-5p
Ulk1	mmu-miR-7688-5p	Usp47	mmu-miR-30a-5p
Ulk1	mmu-miR-20a-5p	Usp47	mmu-miR-30b-5p
Ulk1	mmu-miR-106b-5p	Usp47	mmu-miR-30e-5p
Ulk1	mmu-miR-7669-3p	Usp47	mmu-miR-384-5p
Casp8	mmu-miR-466k	Ulk1	mmu-miR-302a-5p

Table S5 TFs-mRNA interaction network nodes.

mRNA	TF	mRNA	TF
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Casp8	HDAC2	Tlr4	NIPBL
Il1b	GATA4	Tlr4	NR3C1
Il1b	JUNB	Tlr4	POLR2A
Il1b	STAT5	Tlr4	PPARG
Il1b	STAT5A	Tlr4	SPI1
Il1b	YY1	Tlr4	STAT6
Tlr4	BRD4	Tlr4	TET2
Tlr4	CEBPB	Usp47	RNF2
Tlr4	CREB1	Usp47	RYBP
Tlr4	ELF1	Usp47	YY1
Tlr4	FLI1	Usp47	ZFP281
Tlr4	HDAC1	Usp47	ESR2
Tlr4	IKZF1	Usp47	HDAC1
Tlr4	KDM1A		

Table S6 Drugs - mRNA interaction network nodes.

mRNA	drug	mRNA	drug
Casp8	Tetrachlorodibenzodioxin	Il1b	Aluminum Chloride
Il1b	Lipopolysaccharides	Il1b	Asbestos, Crocidolite
Il1b	Dextran Sulfate	Il1b	Benzo(a)pyrene
Il1b	lipopolysaccharide, Escherichia coli O111 B4	Il1b	Cadmium Chloride
Il1b	Acetaminophen	Il1b	Soot
Il1b	lipopolysaccharide, E coli O55-B5	Il1b	Acrylamide
Il1b	deoxynivalenol	Il1b	Asbestos, Serpentine
Il1b	Particulate Matter	Il1b	Blood Glucose
Il1b	Tetrachlorodibenzodioxin	Il1b	Choline
Il1b	Cisplatin	Il1b	Croton Oil

II1b	Paraquat	II1b	Curcumin
II1b	Carbon Tetrachloride	II1b	Cyclophosphamide
II1b	Dexamethasone	II1b	Diclofenac
II1b	Trinitrobenzenesulfonic Acid	II1b	Dinitrochlorobenzene
II1b	Dietary Fats	II1b	Doxorubicin
II1b	Ethanol	II1b	Dust
II1b	lipopolysaccharide, E. coli O26-B6	II1b	Glucose
II1b	sodium arsenite	II1b	Halothane
II1b	Zymosan	II1b	Maneb
II1b	Air Pollutants	II1b	Methamphetamine
II1b	bisphenol A	II1b	Methionine
II1b	Bleomycin	II1b	Ovalbumin
II1b	Quercetin	II1b	Oxygen
II1b	Streptozocin	II1b	perfluorooctanoic acid
II1b	1-Methyl-4-phenyl-1,2,3,6- tetrahydropyridine	II1b	Poly I-C
II1b	Mustard Gas	II1b	Polysaccharides
II1b	Oxazolone	II1b	Rotenone
II1b	Ozone	II1b	Silver Compounds
II1b	Plant Extracts	II1b	Sulfasalazine
II1b	Silicon Dioxide	Tlr4	Lipopolysaccharides
II1b	titanium dioxide	Tlr4	lipopolysaccharide, Escherichia coli O111 B4
II1b	1-Methyl-4- phenylpyridinium	Tlr4	Paraquat
II1b	1-Naphthylisothiocyanate	Tlr4	Carbon Tetrachloride
II1b	Adenosine Triphosphate	Tlr4	Dextran Sulfate

II1b	Nanotubes, Carbon	Tlr4	Dietary Fats
II1b	pirinixic acid	Tlr4	Methamphetamine
II1b	Resveratrol	Tlr4	Ozone
II1b	T-2 Toxin	Tlr4	bisphenol A
II1b	Tetradecanoylphorbol Acetate	Tlr4	Dexamethasone
II1b	Toluene 2,4-Diisocyanate	Ulk1	Tetrachlorodibenzodioxin
II1b	Vehicle Emissions		

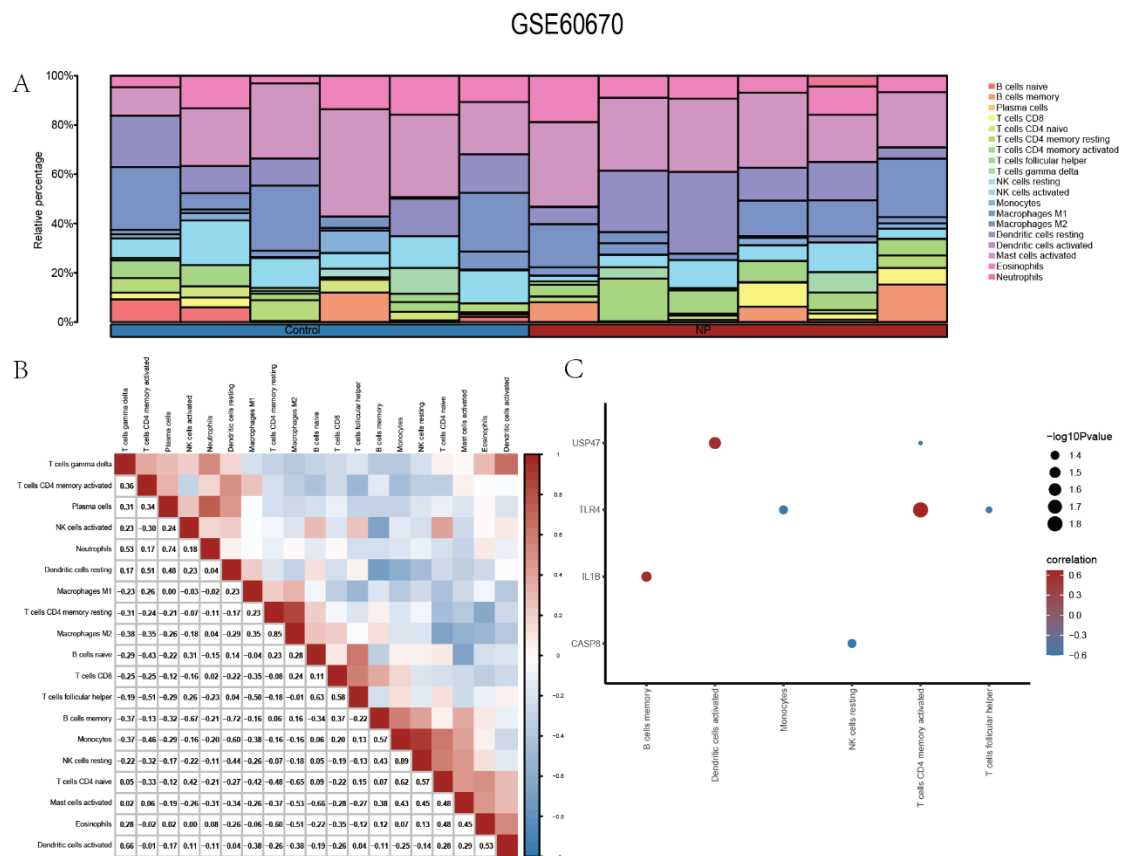


Figure S1 Immune infiltration analysis of the GSE60670 dataset. A Histogram of immune infiltration of immune cells in the GSE60670 dataset. B Correlation of the abundance of immune cell infiltration in the GSE60670 dataset. C Heat map of immune cell correlations with Co-PRDEGs in the GSE60670 dataset.

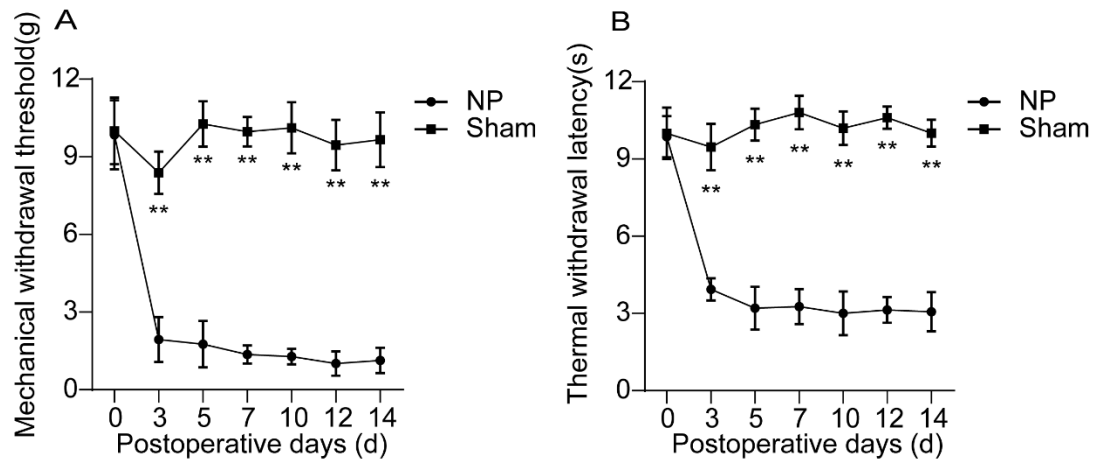


Figure S2 Pain threshold determination of rats following exposure to the chronic constriction injury (CCI). (A, B) The mechanical withdrawal threshold (MWT) and thermal withdrawal latency (TWL) was measured at 0, 3, 5, 7, 10, 12, 14 days after induction of CCI. $**P < 0.01$.