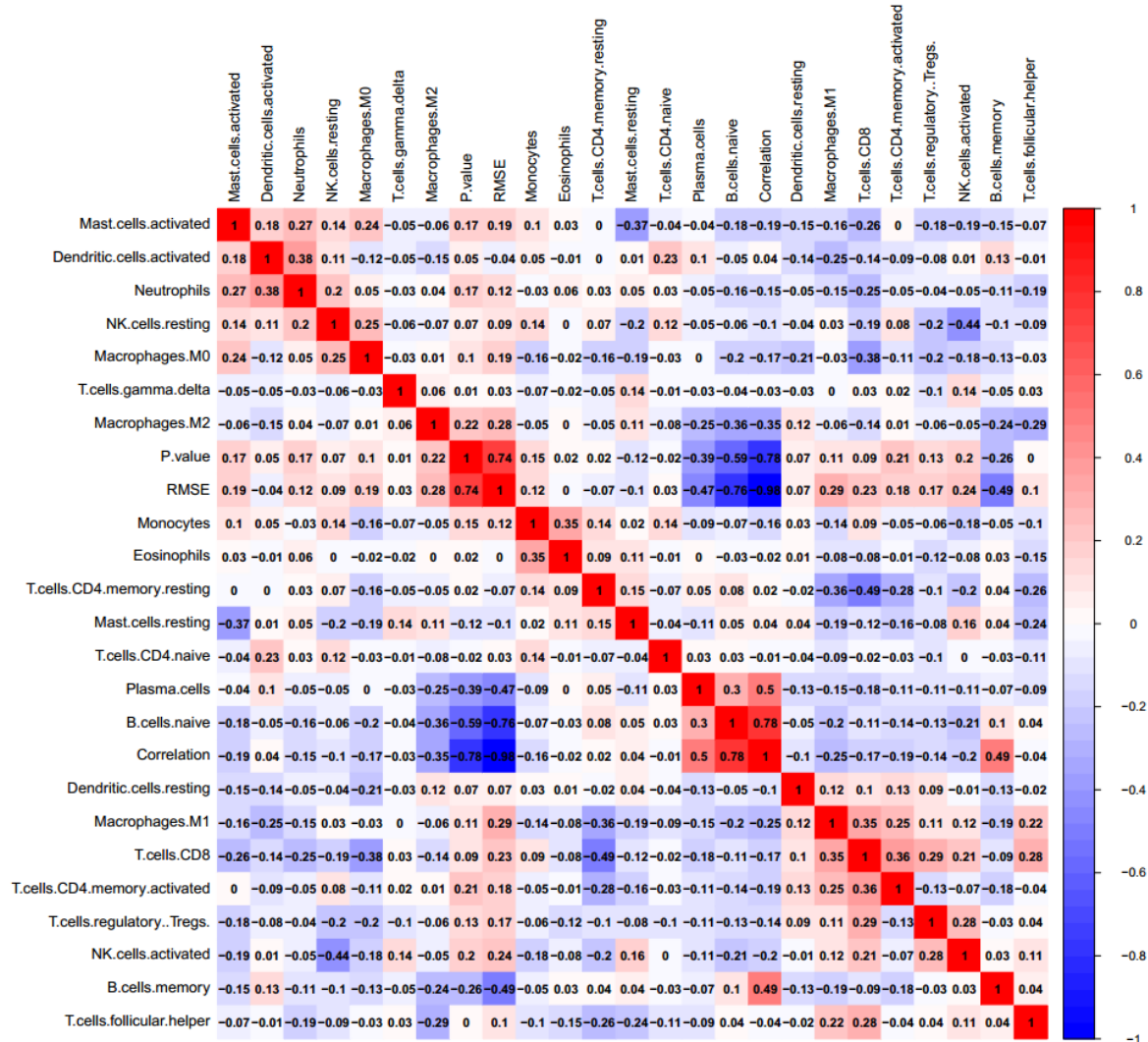


Supplementary Figure 1 The Flow chart of this study.



Supplementary Figure 2 The correlation matrix shows correlations between infiltrating immune cells in GC samples, as assessed by.

Supplementary Table 1 The list of inflammatory-related genes

Gene symbol	Gene description
ABCA1	ATP binding cassette subfamily A member 1
ABI1	abl interactor 1
ACVR1B	activin A receptor type 1B
ACVR2A	activin A receptor type 2A
ADM	adrenomedullin
ADORA2B	adenosine A2b receptor
ADRM1	adhesion regulating molecule 1
AHR	aryl hydrocarbon receptor
APLNR	apelin receptor
AQP9	aquaporin 9
	ATPase sarcoplasmic/endoplasmic reticulum Ca ²⁺
ATP2A2	transporting 2
ATP2B1	ATPase plasma membrane Ca ²⁺ transporting 1
ATP2C1	ATPase secretory pathway Ca ²⁺ transporting 1
AXL	AXL receptor tyrosine kinase
BDKRB1	bradykinin receptor B1
BEST1	bestrophin 1
BST2	bone marrow stromal cell antigen 2
BTG2	BTG anti-proliferation factor 2
C3AR1	complement C3a receptor 1
C5AR1	complement C5a receptor 1
CALCRL	calcitonin receptor like receptor
CCL17	C-C motif chemokine ligand 17
CCL2	C-C motif chemokine ligand 2
CCL20	C-C motif chemokine ligand 20
CCL22	C-C motif chemokine ligand 22
CCL24	C-C motif chemokine ligand 24
CCL5	C-C motif chemokine ligand 5
CCL7	C-C motif chemokine ligand 7

CCR7	C-C motif chemokine receptor 7
CCRL2	C-C motif chemokine receptor like 2
CD14	CD14 molecule
CD40	CD40 molecule
CD48	CD48 molecule
CD55	CD55 molecule (Cromer blood group)
CD69	CD69 molecule
CD70	CD70 molecule
CD82	CD82 molecule
CDKN1A	cyclin dependent kinase inhibitor 1A
CHST2	carbohydrate sulfotransferase 2
CLEC5A	C-type lectin domain containing 5A
CMKLR1	chemerin chemokine-like receptor 1
CSF1	colony stimulating factor 1
CSF3	colony stimulating factor 3
CSF3R	colony stimulating factor 3 receptor
CX3CL1	C-X3-C motif chemokine ligand 1
CXCL10	C-X-C motif chemokine ligand 10
CXCL11	C-X-C motif chemokine ligand 11
CXCL6	C-X-C motif chemokine ligand 6
CXCL9	C-X-C motif chemokine ligand 9
CXCR6	C-X-C motif chemokine receptor 6
CYBB	cytochrome b-245 beta chain
DCBLD2	discoidin, CUB and LCCL domain containing 2
EBI3	Epstein-Barr virus induced 3
EDN1	endothelin 1
EIF2AK2	eukaryotic translation initiation factor 2 alpha kinase 2
EMP3	epithelial membrane protein 3
ADGRE1	adhesion G protein-coupled receptor E1
EREG	epiregulin
F3	coagulation factor III, tissue factor

FFAR2	free fatty acid receptor 2
FPR1	formyl peptide receptor 1
FZD5	frizzled class receptor 5
GABBR1	gamma-aminobutyric acid type B receptor subunit 1
GCH1	GTP cyclohydrolase 1
GNA15	G protein subunit alpha 15
GNAI3	G protein subunit alpha i3
GP1BA	glycoprotein Ib platelet subunit alpha
GPC3	glypican 3
GPR132	G protein-coupled receptor 132
GPR183	G protein-coupled receptor 183
HAS2	hyaluronan synthase 2
HBEGF	heparin binding EGF like growth factor
HIF1A	hypoxia inducible factor 1 subunit alpha
HPN	hepsin
HRH1	histamine receptor H1
ICAM1	intercellular adhesion molecule 1
ICAM4	intercellular adhesion molecule 4
ICOSLG	inducible T cell costimulator ligand
IFITM1	interferon induced transmembrane protein...
IFNAR1	interferon alpha and beta receptor subun...
IFNGR2	interferon gamma receptor 2
IL10	interleukin 10
IL10RA	interleukin 10 receptor subunit alpha
IL12B	interleukin 12B
IL15	interleukin 15
IL15RA	interleukin 15 receptor subunit alpha
IL18	interleukin 18
IL18R1	interleukin 18 receptor 1
IL18RAP	interleukin 18 receptor accessory protein
IL1A	interleukin 1 alpha

IL1B	interleukin 1 beta
IL1R1	interleukin 1 receptor type 1
IL2RB	interleukin 2 receptor subunit beta
IL4R	interleukin 4 receptor
IL6	interleukin 6
IL7R	interleukin 7 receptor
CXCL8	C-X-C motif chemokine ligand 8
INHBA	inhibin subunit beta A
IRAK2	interleukin 1 receptor associated kinase 2
IRF1	interferon regulatory factor 1
IRF7	interferon regulatory factor 7
ITGA5	integrin subunit alpha 5
ITGB3	integrin subunit beta 3
ITGB8	integrin subunit beta 8
	potassium voltage-gated channel subfamily A member
KCNA3	3
	potassium inwardly rectifying channel subfamily J
KCNJ2	member 2
	potassium calcium-activated channel subfamily M
KCNMB2	regulatory beta subunit 2
KIF1B	kinesin family member 1B
KLF6	Kruppel like factor 6
LAMP3	lysosomal associated membrane protein 3
LCK	LCK proto-oncogene, Src family tyrosine kinase
LCP2	lymphocyte cytosolic protein 2
LDLR	low density lipoprotein receptor
LIF	LIF interleukin 6 family cytokine
LPAR1	lysophosphatidic acid receptor 1
LTA	lymphotoxin alpha
LY6E	lymphocyte antigen 6 family member E
LYN	LYN proto-oncogene, Src family tyrosine kinase

MARCO	macrophage receptor with collagenous structure
MEFV	MEFV innate immunity regulator, pyrin
MEP1A	meprin A subunit alpha
MET	MET proto-oncogene, receptor tyrosine kinase
MMP14	matrix metalloproteinase 14
MSR1	macrophage scavenger receptor 1
MXD1	MAX dimerization protein 1
MYC	MYC proto-oncogene, bHLH transcription factor
NAMPT	nicotinamide phosphoribosyltransferase
NDP	norrin cystine knot growth factor NDP
NFKB1	nuclear factor kappa B subunit 1
NFKBIA	NFKB inhibitor alpha
NLRP3	NLR family pyrin domain containing 3
NMI	N-myc and STAT interactor
NMUR1	neuromedin U receptor 1
	nucleotide binding oligomerization domain containing
NOD2	2
NPFFR2	neuropeptide FF receptor 2
OLR1	oxidized low density lipoprotein receptor 1
OPRK1	opioid receptor kappa 1
OSM	oncostatin M
OSMR	oncostatin M receptor
P2RX4	purinergic receptor P2X 4
P2RX7	purinergic receptor P2X 7
P2RY2	purinergic receptor P2Y2
PCDH7	protocadherin 7
PDE4B	phosphodiesterase 4B
PDPN	podoplanin
PIK3R5	phosphoinositide-3-kinase regulatory subunit 5
PLAUR	plasminogen activator, urokinase receptor
PROK2	prokineticin 2

PSEN1	presenilin 1
PTAFR	platelet activating factor receptor
PTGER2	prostaglandin E receptor 2
PTGER4	prostaglandin E receptor 4
PTGIR	prostaglandin I2 receptor
PTPRE	protein tyrosine phosphatase receptor type E
PVR	PVR cell adhesion molecule
RAF1	Raf-1 proto-oncogene, serine/threonine kinase
RASGRP1	RAS guanyl releasing protein 1
RELA	RELA proto-oncogene, NF-kB subunit
RGS1	regulator of G protein signaling 1
RGS16	regulator of G protein signaling 16
RHOG	ras homolog family member G
RIPK2	receptor interacting serine/threonine kinase 2
RNF144B	ring finger protein 144B
ROS1	ROS proto-oncogene 1, receptor tyrosine kinase
RTP4	receptor transporter protein 4
SCARF1	scavenger receptor class F member 1
SCN1B	sodium voltage-gated channel beta subunit 1
SELE	selectin E
SELL	selectin L
SELENOS	selenoprotein S
SEMA4D	semaphorin 4D
SERPINE1	serpin family E member 1
SGMS2	sphingomyelin synthase 2
SLAMF1	signaling lymphocytic activation molecule family member 1
SLC11A2	solute carrier family 11 member 2
SLC1A2	solute carrier family 1 member 2
SLC28A2	solute carrier family 28 member 2
SLC31A1	solute carrier family 31 member 1

SLC31A2	solute carrier family 31 member 2
SLC4A4	solute carrier family 4 member 4
SLC7A1	solute carrier family 7 member 1
SLC7A2	solute carrier family 7 member 2
SPHK1	sphingosine kinase 1
SRI	sorcini
STAB1	stabilin 1
TACR1	tachykinin receptor 1
TACR3	tachykinin receptor 3
TAPBP	TAP binding protein
TIMP1	TIMP metalloproteinase inhibitor 1
TLR1	toll like receptor 1
TLR2	toll like receptor 2
TLR3	toll like receptor 3
TNFAIP6	TNF alpha induced protein 6
TNFRSF1B	TNF receptor superfamily member 1B
TNFRSF9	TNF receptor superfamily member 9
TNFSF10	TNF superfamily member 10
TNFSF15	TNF superfamily member 15
TNFSF9	TNF superfamily member 9
TPBG	trophoblast glycoprotein
VIP	vasoactive intestinal peptide

Supplementary Table 2 Overall survival associated gene list in GC from the training set (GSE66229)

Gene	HR	HR.95L	HR.95H	P value
MRPS17	380.5203578	15.90440173	9104.130112	0.000244603
AASS	118.4141649	4.159946922	3370.695517	0.005201202
PDE2A	33.86671769	2.709647057	423.2855951	0.006265951
GUF1	0.015257836	0.000739407	0.314849013	0.006763943
CASP3	0.049203673	0.005545353	0.436582048	0.006849704
PDK4	1.330150772	1.080475553	1.637520692	0.00715182
PDK3	29.21284299	2.236244673	381.617542	0.0100596
ECHDC3	25.95955399	2.172760949	310.1576561	0.010078968
HPDL	22.96049052	1.945319606	271.0012912	0.012834165
ALDH18A1	0.423360734	0.21092818	0.849740946	0.01560535
CYB5B	0.425448465	0.212474856	0.851895607	0.015846025
MRPS35	0.370566381	0.158957246	0.863876581	0.021516127
NDUFC2	2.001462483	1.086640963	3.686454135	0.02597423
MOCS1	13.60276749	1.292773976	143.130421	0.029718873
ACAA2	1.620742259	1.045661414	2.512099458	0.030799365
CKMT2	61.42123971	1.400911889	2692.937877	0.03278256
LIPT2	94.79515826	1.448133653	6205.312619	0.032881852
ETHE1	0.406807751	0.176758111	0.936265643	0.034445915

IDE	0.120022101	0.015868024	0.90781969	0.040010265
ACOT7	0.249370751	0.064906353	0.958084504	0.043143812
ADHFE1	47.1564084	1.059649119	2098.550183	0.046603898
GATC	77.98882496	1.033534047	5884.911909	0.048277648
PAICS	0.571278486	0.327463307	0.996628024	0.048625595
MPV17	7.433076974	0.984357716	56.12861304	0.051813558
BID	0.097342601	0.00901763	1.050784071	0.054964889
PDE12	0.058673741	0.003149516	1.093059454	0.057389139
ACSM5	44.67691652	0.834490197	2391.911705	0.061362955
ABHD11	0.324250435	0.098147941	1.07122313	0.064729095
PHB	0.609636901	0.359660187	1.033356387	0.06604837
C1QBP	0.566837776	0.308524827	1.041423694	0.06737273
ACADVL	0.675175355	0.443037556	1.028946088	0.067666797
SHMT2	0.593460205	0.338483609	1.040508333	0.068553118
SFXN1	0.193668108	0.031559564	1.188461796	0.076156044
SLC25A51P4	37.14724737	0.673688835	2048.301704	0.07724487
CCDC58	34.02884042	0.674509851	1716.745838	0.077878199
HSPD1	0.893173772	0.785833221	1.015176459	0.083739255
IDH3A	0.345237613	0.102347307	1.164554427	0.086456257
NT5DC2	2.041111778	0.900920555	4.624311505	0.087281782

POLQ	0.043372599	0.001179119	1.595412867	0.088008472
SLC25A24	0.329316936	0.09001943	1.204735954	0.093250479
ACADL	29.13464189	0.529028356	1604.502572	0.099218795
AGPAT5	0.345126106	0.096789002	1.230635988	0.100998427
SLC25A27	28.33684601	0.509797948	1575.088415	0.102825326
BCL2L2	4.934029651	0.663649123	36.68301176	0.118901032
PNPO	0.207320092	0.028624898	1.501546684	0.119333065
AMT	20.74197444	0.45157694	952.7269119	0.12046497
TMEM177	35.27495437	0.379881108	3275.557488	0.123246327
FXN	30.87363054	0.389695199	2445.965629	0.124166156
ALDH5A1	0.221099411	0.032243792	1.516104249	0.124458788
CKMT1A	0.261274159	0.045812614	1.490074038	0.13079329
DNAJC15	0.457502022	0.165872755	1.261859429	0.130878843
ACCS	23.81312973	0.372599841	1521.914625	0.135033317
MTCH2	0.408413012	0.126059714	1.323191866	0.135427127
PDF	41.87395738	0.310803774	5641.592708	0.135477577
CHCHD2	1.33603741	0.90685733	1.968331625	0.14280702
LAP3	0.725750168	0.471157004	1.117914627	0.145871652
CPS1	0.894221157	0.766999856	1.042544496	0.153333086
LRPPRC	0.735301698	0.476892845	1.133731807	0.163979787

FAM136A	0.281981748	0.046820405	1.69827037	0.167017768
BNIP3	3.479356022	0.591471626	20.46745406	0.167859416
CLPB	8.06948577	0.394300018	165.1448076	0.175185734
ROMO1	2.68642569	0.636572399	11.33709692	0.178572378
MTHFD2	0.554114907	0.232148964	1.322613402	0.183503371
ME3	16.20552357	0.219488949	1196.502124	0.204424594
PXMP2	10.00777061	0.260196257	384.9228023	0.216102246
IFI27	0.881899297	0.719728528	1.08061073	0.225436642
YARS2	3.836756766	0.435584385	33.79529432	0.225779924
C2orf69	0.064044467	0.000748292	5.481404507	0.226073109
ALDH1B1	1.265431587	0.86436003	1.85260429	0.226103059
SOD2	0.899521098	0.757036871	1.068822718	0.228778901
ATAD1	0.297141811	0.040672028	2.170859434	0.23168518
RSAD1	10.43041179	0.212152239	512.8085882	0.238074836
OCIAD2	0.582014591	0.236439844	1.432673014	0.238927085
NLN	13.25858724	0.178342861	985.6864155	0.239707189
DMPK	1.536431944	0.743351814	3.175647217	0.246320768
SLC25A15	0.144563352	0.005124876	4.077867332	0.25635216
DARS2	1.903473107	0.623608173	5.810074377	0.258246703
FKBP10	1.02349367	0.982992509	1.065663557	0.259630126

BAK1	0.361684846	0.060333014	2.168231283	0.265712417
MTHFD1L	0.247516985	0.020588767	2.975635056	0.271114235
LYPLA1	0.643919525	0.292088007	1.419545972	0.275114759
PGAM5	0.324416979	0.040497586	2.598830875	0.288981279
MRPL13	0.322842344	0.039432576	2.643174504	0.291924886
OPA1	0.530077133	0.159695206	1.759487801	0.29977203
TOMM5	0.561431237	0.18837511	1.673283873	0.30017971
MTX1	2.231382543	0.487432872	10.21487949	0.301085984
PRDX3	0.752244367	0.437311516	1.293978246	0.303614319
YME1L1	0.735861349	0.410119185	1.3203282	0.30380099
CHCHD10	0.463285447	0.104993728	2.044249775	0.309685283
MRPL19	0.254154497	0.017304305	3.732857764	0.317707445
ABCD1	0.448048979	0.088914079	2.257773901	0.330554643
DLAT	0.472166107	0.099563354	2.239185634	0.34469899
GPX4	1.366357572	0.715065616	2.610855526	0.344749978
MRPL3	0.610791081	0.215369317	1.732213996	0.353947737
SLC25A22	0.397009345	0.056165074	2.806306649	0.354536257
PRELID1	0.70043558	0.323125504	1.518326458	0.367051331
LDHD	3.828734679	0.199270128	73.56450961	0.373318783
CASP8	0.332144154	0.028898292	3.817517564	0.376319186

ARMC10	0.291121036	0.018767737	4.515805916	0.377671054
FABP1	0.856062963	0.597870552	1.225756635	0.396136483
BNIP3L	1.569366532	0.549364019	4.483204626	0.400064144
RFK	0.595345913	0.169945495	2.08559078	0.417484789
MRPL17	0.458381999	0.066589677	3.155354784	0.428062978
PCCA	1.606482408	0.479897906	5.377780763	0.441899714
SLC25A40	4.075367986	0.113040951	146.9257298	0.442417746
COQ2	6.127306613	0.057785885	649.706871	0.446169384
TOMM40	0.674629592	0.240163461	1.895063816	0.455127456
MRPL30	0.298112997	0.011735677	7.572750788	0.463374913
MRPL14	1.590617775	0.455893957	5.549678534	0.466642105
MRPL42	0.359595433	0.022840223	5.661454118	0.467079368
SPTLC2	0.707830772	0.277579476	1.804976393	0.469373216
SLC25A43	2.589463986	0.194894472	34.40489436	0.470965593
PDP1	0.6343753	0.181040383	2.222885386	0.476851722
TFAM	0.355216035	0.018529082	6.809750779	0.492158573
OPA3	2.894436672	0.131539971	63.68987002	0.50040619
ALDH1L1	3.127408357	0.107751997	90.77031815	0.507008981
C15orf48	0.879072847	0.598177151	1.291873268	0.511711388
GPD2	0.591613	0.120661745	2.900720051	0.517571004

NDUFAF4	3.647634018	0.06897196	192.9078706	0.522706521
ACACB	1.650052357	0.335845963	8.106909367	0.537501824
RECQL4	0.60223534	0.117761978	3.079834536	0.542510687
LACTB2	1.367962895	0.490980657	3.811397566	0.548963398
AKR1B10	1.044656069	0.900146247	1.212365554	0.565213906
GOLPH3	0.82466831	0.421912459	1.611893194	0.572909818
SLC25A32	0.364876931	0.010312458	12.9101302	0.579512204
TOMM34	0.729239425	0.238355403	2.231080703	0.579970415
CKMT1B	0.835522385	0.441904783	1.579746773	0.580304793
ACLY	1.092661496	0.795934051	1.500010136	0.583587225
D2HGDH	0.348775315	0.007906673	15.38500708	0.585622601
CPT1A	1.112480523	0.757008531	1.63487314	0.587350526
MDH2	0.910411085	0.647416123	1.280240505	0.58945891
VDAC1	0.92887813	0.704375619	1.224935329	0.601211981
MAOA	0.893700488	0.5851967	1.364841196	0.602915517
MRPL48	2.079036716	0.116787152	37.01086616	0.618334245
MARS2	0.312541846	0.00261257	37.38938703	0.633762445
MRPL47	0.743837704	0.211678817	2.613839862	0.644425388
BIK	0.533973729	0.034059378	8.371495981	0.655020272
UCP2	1.104334219	0.713876225	1.70835507	0.655717449

GRPEL2	0.402039953	0.006590579	24.52533031	0.663971997
BBC3	0.496904913	0.017101503	14.43817529	0.684130903
AGMAT	0.659030592	0.08790175	4.940986041	0.684972824
PXMP4	1.775076802	0.108143906	29.13615538	0.687720262
BCL2A1	1.863235111	0.085680666	40.51841855	0.692044083
METTL8	2.242408219	0.035732487	140.7233304	0.702178623
LDHB	1.026320586	0.895246658	1.176585175	0.709394181
MRPS30	0.598553255	0.030022943	11.9330738	0.736761642
GLS	0.923523329	0.580570876	1.469063253	0.736923959
CYCS	0.944346898	0.671452163	1.328152791	0.742099923
SLC25A4	1.294499995	0.252327242	6.641099171	0.757018003
GTPBP10	1.306142145	0.221620925	7.697862014	0.767919426
NUDT5	1.323725314	0.198066108	8.846787189	0.772304971
DNA2	0.543696231	0.006298376	46.93362099	0.78877492
RHOT2	1.28861507	0.190842547	8.701040855	0.794695418
GPT2	0.884161012	0.328990854	2.376177592	0.807166226
ACOT13	1.311368879	0.147298056	11.6748882	0.808004385
MRPS10	0.844789051	0.204331073	3.492706858	0.815829041
PYCR1	0.949908163	0.605172372	1.491022325	0.823220479
PMAIP1	0.84088117	0.169516167	4.17117232	0.832032515

ACSF2	1.229083518	0.147282056	10.25682512	0.848880272
CHDH	0.835210781	0.128182258	5.442071776	0.850635094
TIMM8A	1.548453356	0.011664296	205.5595752	0.860834788
PNPT1	0.798779832	0.06379983	10.00079807	0.861682403
NUDT8	1.335247814	0.038138967	46.74711592	0.873378024
CMPK2	1.168817952	0.148286794	9.212792109	0.882274062
ABCA9	0.665448511	0.001158284	382.3083532	0.900013764
ACSM3	1.085994588	0.230232943	5.122569484	0.916980556
HSPE1	1.021273661	0.681289618	1.530919984	0.918821726
SLC25A39	0.972489479	0.56468837	1.674792395	0.919881836
PTRH2	0.826186456	0.016836058	40.5429858	0.923424948
MRPL15	0.964594767	0.273589106	3.400877605	0.955287003
ECHDC2	1.068050481	0.073766279	15.46413684	0.961494037
PDSS1	1.102528202	0.019020957	63.9067968	0.962416536
DTYMK	0.961343121	0.100473081	9.198290564	0.972706827
