

Fig. S1 Correlation analysis of CDI with neutrophil percentage and lymphocyte percentage in clinical samples. **(a)** Scatter plot of correlation between CDI and neutrophil percentage. **(b)** Scatter plot of correlation between CDI and lymphocyte percentage.

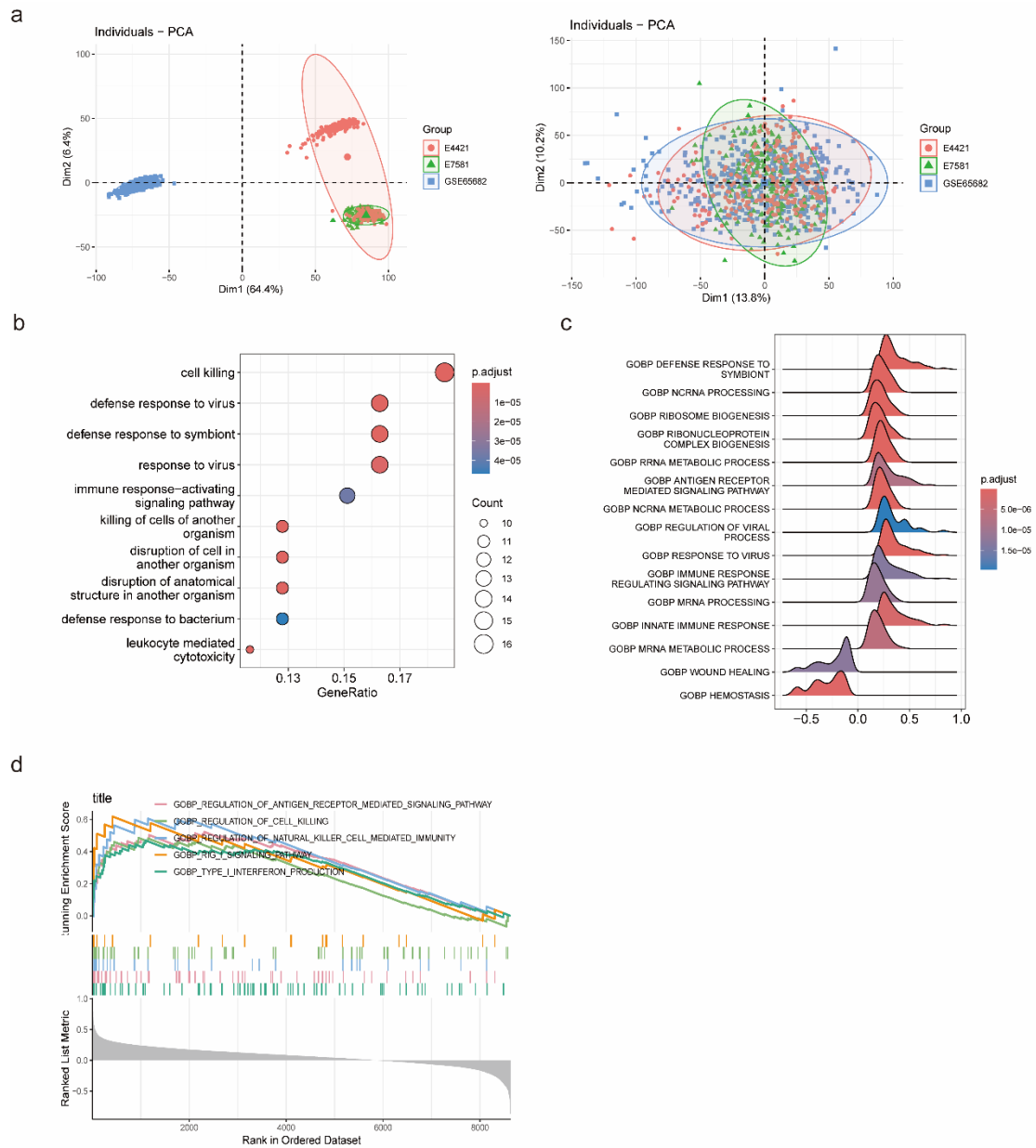


Fig. S2 Transcriptome data merging and enrichment analysis. **(a)** Principal component analysis (PCA) on GSE65682, E-MTAB-4421 and E-MTAB-7581 datasets before and after elimination of batch effect. **(b)** The enrichment analysis identified the top 10 GOBP terms enriched in transcriptome presented by bubble plot. **(c)** GSEA analysis identified the top 15 GO terms enriched in in transcriptome presented by ridge plot. **(d)** GSEA analysis identified the GO terms enriched in high CDI group.

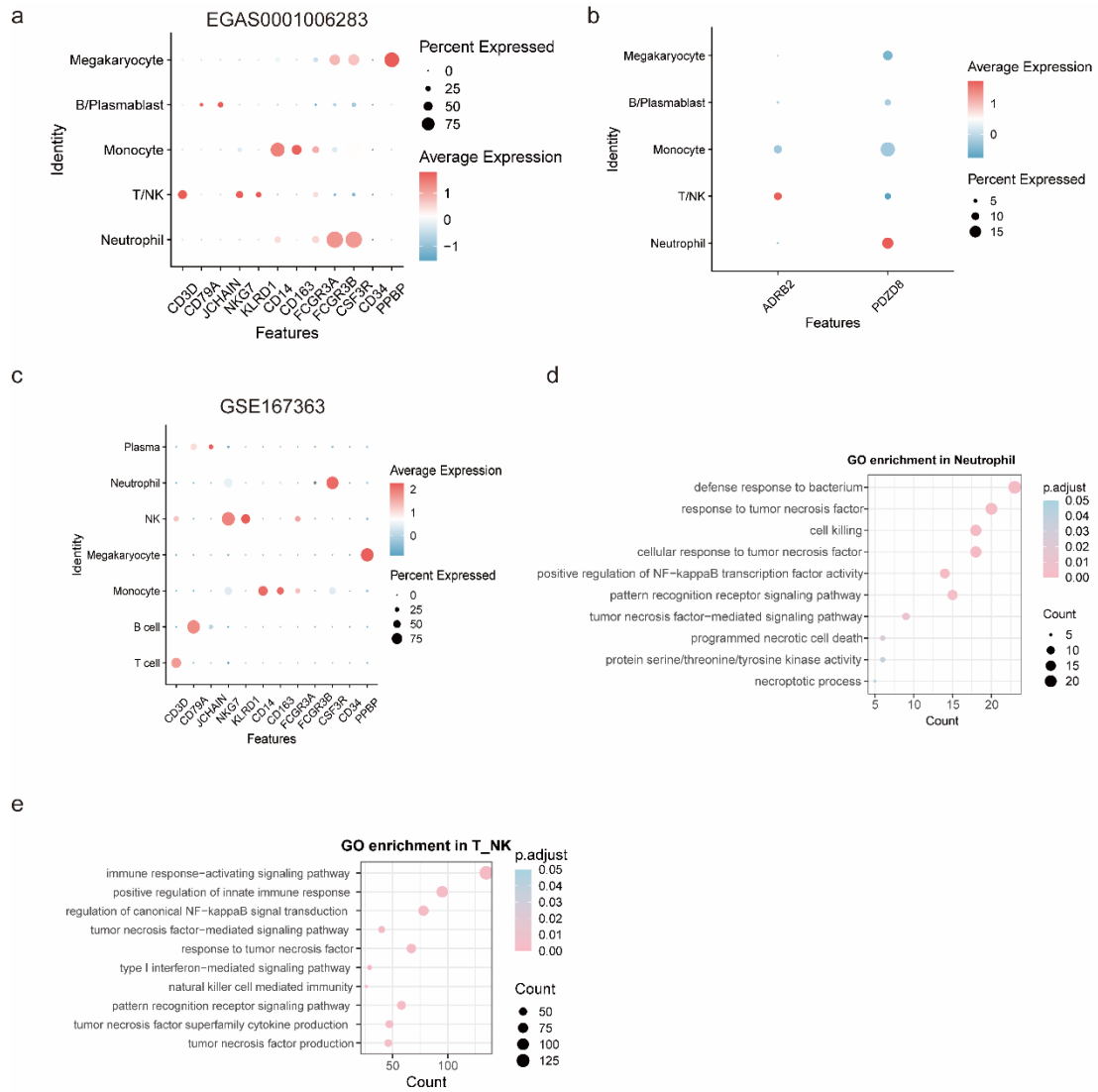


Fig. S3 Single-cell transcriptome annotation and enrichment analysis. **(a)** The dot plot showed a classical marker expressed in megakaryocyte, B/plasmablast, monocyte, T/NK, and neutrophil clusters in EGAS0001006283 scRNA-seq data. **(b)** The bubble plot showed two key genes expressed in different cell clusters. **(c)** The dot plot showed a classical marker expressed in T cell, B cell, Monocyte, Megakaryocyte, NK, Neutrophil, Plasma clusters in GSE167363 scRNA-seq data. **(d)** The GO enrichment analysis identified biological progress items in neutrophil presented by bubble plot in EGAS0001006283 scRNA-seq data. **(e)** The GO enrichment analysis identified biological progress items in T/NK presented by bubble plot in EGAS0001006283 scRNA-seq data.

Table. S1 Result of Univariate COX regression analysis.

Gene	HR	L95CI	H95CI	pvalue
ZSCAN2	0.596400655	0.415217041	0.856645337	0.005150571
ZNF783	0.719222863	0.545534258	0.948210893	0.019436787
ZNF689	0.444074991	0.264789053	0.744753589	0.00209054
ZNF614	0.663298767	0.456927472	0.962877658	0.030857989
ZNF514	0.709911392	0.553938275	0.909802062	0.006794204
ZNF428	0.43478127	0.237121356	0.797206778	0.007088584
ZNF362	0.56501065	0.359277056	0.888553916	0.013455509
ZNF324	0.633644852	0.415420702	0.966504068	0.034164395
ZNF212	0.512674022	0.323681898	0.8120153	0.004407129
ZFY	0.566263249	0.331510877	0.967250516	0.037355352
XRCC6	0.577845221	0.336410847	0.992551525	0.046916737
VPS52	0.294194119	0.125591135	0.689142432	0.004844034
VPS13B	0.633840179	0.408849735	0.982643102	0.041526499
UVRAG	0.581426833	0.338561208	0.998511212	0.049372139
UTP6	0.52472649	0.28916469	0.952183649	0.033911242
USP10	1.48952455	1.007082932	2.203079124	0.046009368
URM1	0.407344324	0.188577368	0.879900913	0.022279132
UBXN2B	1.853514833	1.103532426	3.113200079	0.019684191
UBQLN2	2.323561798	1.225667517	4.404897211	0.0097803
UBE4A	1.890415358	1.0466975	3.414234034	0.034748073
UBE2R2	1.65635748	1.054567369	2.601559826	0.028480085
UBE2Q1	0.325343314	0.132114789	0.801184128	0.014604404
UBE2F	1.644872587	1.054513	2.565739662	0.028237935
UBE2C	1.371454606	1.056711932	1.779943689	0.017565033
UBAP1	1.694709254	1.001283398	2.86835821	0.049444222
TTYH2	0.77146764	0.608303097	0.978397648	0.0323468
TTLL3	2.294913502	1.272995844	4.13719181	0.005732173
TTC31	0.543150279	0.358395777	0.823146488	0.004008813
TTC17	0.518073639	0.268848812	0.998331716	0.0494197
TSPAN32	0.523564734	0.308350256	0.888989144	0.016593773
TSPAN3	0.778089505	0.607904731	0.995918023	0.046322331
TROAP	1.457561328	1.049841218	2.023625086	0.024417572
TRMT1	0.488844661	0.287271711	0.831857414	0.008322877
TRIT1	0.662328464	0.482854511	0.908511743	0.010619292
TRIP12	3.113884884	1.550070818	6.255378117	0.00141557
TRIM44	0.618918861	0.408639824	0.937403881	0.023503594
TRIM25	1.774104942	1.111111877	2.832701559	0.016338113
TRAPPC4	0.318428864	0.121358015	0.835519116	0.020067745
TOP2A	1.148868007	1.005161082	1.313120573	0.041803826
TNFRSF1A	2.205623795	1.096047428	4.438472461	0.026622707
TMEM42	0.47612136	0.245044744	0.92510268	0.028547503
TMEM138	0.592191326	0.419418767	0.836134658	0.002912781

TLR8	1.460038564	1.002384788	2.126641022	0.048566514
TLR7	0.814386971	0.681769418	0.972801245	0.02357192
TLR5	1.542844841	1.064221456	2.236724501	0.022111264
TGFA	1.81552487	1.221424153	2.698596179	0.003187631
TEX264	0.570358046	0.382679118	0.850081139	0.005821242
TERF2	0.411176755	0.179650018	0.941087156	0.035405378
TCTN1	0.662455843	0.449223042	0.976903907	0.037721405
TCP11L2	1.588956448	1.161169432	2.174344693	0.003807062
TBX1	0.621537784	0.390738391	0.988664607	0.044632414
TBC1D14	1.776454612	1.035177873	3.048549501	0.037029462
TAF15	0.494225241	0.267496001	0.913129869	0.024442049
SYNE1	3.25969505	1.790913894	5.933066828	0.000110195
STX11	2.107457911	1.339285585	3.31622986	0.00126871
STK25	0.459652582	0.28455315	0.742499235	0.001488968
STAT5B	2.524649756	1.307068256	4.876452598	0.005829347
SSH2	2.279510162	1.205340426	4.310953543	0.011263146
SRP68	0.520743077	0.301418441	0.89965747	0.019334659
SPI1	2.188695574	1.177504778	4.068253825	0.013264852
SP6	1.933228889	1.050721152	3.55696079	0.034089635
SNX29	0.599283701	0.371876006	0.965754576	0.035457921
SNX11	2.261644635	1.012017108	5.054298409	0.04669249
SNRNP200	0.514413512	0.296688822	0.891915172	0.017917148
SMAD3	0.617367123	0.39324625	0.969220088	0.036098041
SLC46A2	0.77466709	0.60892803	0.985517287	0.037641326
SLC37A2	0.712467405	0.528100839	0.961198629	0.026487526
SLC35A5	2.25889677	1.197987056	4.259323663	0.011795579
SLC25A44	2.189687937	1.109931574	4.31984581	0.023770295
SLC12A6	1.838836674	1.085262701	3.115669884	0.023568659
SIVA1	0.476857157	0.292538823	0.777307935	0.002973474
SIRPA	2.202874511	1.036905287	4.679941527	0.039953605
SIGMAR1	0.64951515	0.434451752	0.97103977	0.03544872
SIDT1	0.652084105	0.436221671	0.974765143	0.037108423
SIAH2	1.688847478	1.225050153	2.328235947	0.001378658
SH3GLB1	1.731489168	1.108245813	2.705225415	0.015890461
SERPINE2	1.406048113	1.073153829	1.842206813	0.013431151
SERF1A	0.670485054	0.465486395	0.965764441	0.031788249
SEPLG	1.736122812	1.054719084	2.85774901	0.030046649
SEC23IP	0.528766209	0.315824405	0.885282135	0.015377379
SCYL2	3.059030354	1.594445974	5.868914256	0.000770163
SCRIB	1.844434461	1.022505115	3.327062556	0.041960982
S100A6	2.250178556	1.112930032	4.549525475	0.023955635
S100A11	1.627264963	1.053044384	2.514605556	0.028327143
RUNX3	0.741966358	0.563432144	0.977072539	0.03357666
RTF1	1.768976515	1.094831535	2.858227783	0.019802824

RSPH3	1.91846795	1.220528754	3.015512142	0.004748215
RRP8	0.437821887	0.236937487	0.809023539	0.008377988
RPUSD4	0.649940057	0.444305933	0.950745975	0.02640351
RPS6KA4	0.662163572	0.442419478	0.991051746	0.045107398
RPL9	0.607838898	0.37880828	0.975343322	0.039070791
ROGDI	1.302094539	1.010294202	1.678174718	0.041442511
RNF5	0.49479728	0.302642415	0.808955838	0.005027933
RNF44	2.072695301	1.041663136	4.124237157	0.037871562
RNF25	0.488936156	0.265351849	0.900911622	0.021756312
RNF220	0.404283533	0.220374745	0.741669262	0.003441505
RNF149	2.273602107	1.116818806	4.628563302	0.023538512
RNF135	1.748130193	1.003708753	3.044667253	0.04849092
RNF125	0.593933095	0.395297729	0.892381856	0.012138018
RFTN1	0.786294588	0.631688485	0.978740619	0.031370929
RC3H2	2.267532611	1.011628462	5.082601302	0.046807424
RBM4B	0.491303438	0.308504153	0.782417565	0.002758401
RASSF1	0.705868317	0.524514427	0.949926362	0.021503746
RAP1GAP2	2.35128322	1.210532801	4.56702435	0.011602394
RAC2	3.11485178	1.244658447	7.795151861	0.015199648
RABEP1	0.533333019	0.332321351	0.855930889	0.009200308
R3HCC1	0.334836875	0.133660242	0.838811388	0.019538289
PYGL	2.112534192	1.228279094	3.633376759	0.006869123
PUF60	0.446245471	0.244788977	0.813496679	0.00844589
PTTG1IP	2.907182944	1.110351934	7.611742196	0.029771371
PTPRO	0.645855671	0.444901916	0.937576426	0.021509944
PTCD1	0.589856782	0.374469645	0.92913011	0.022783763
PSMG2	0.547549483	0.309688424	0.968103465	0.038316685
PSMB3	2.139851957	1.097876775	4.17074712	0.025469524
PRTN3	1.158440527	1.039330034	1.291201458	0.007888069
PRPF8	0.372331482	0.184757916	0.75033717	0.005721079
PRPF38B	2.118434964	1.03662596	4.329205395	0.039531714
PRPF31	0.545504367	0.335663854	0.886526838	0.014441281
PRKCD	2.676449554	1.116983051	6.413152113	0.027237513
PRC1	1.217687967	1.011490442	1.465919918	0.03746512
PPP1CB	2.065479777	1.079468566	3.952136122	0.028456434
POM121	1.616862512	1.00526796	2.600544818	0.047520314
POLR3E	0.732252481	0.540712768	0.991642379	0.043987468
POC5	0.327735361	0.141357075	0.759852076	0.009320745
POC1B	2.42562361	1.276734783	4.608357174	0.006808702
PMPCB	0.365199005	0.182020858	0.732719945	0.004577905
PLSCR3	0.603347474	0.3871537	0.940267843	0.025611903
PLOD1	1.664337408	1.025155823	2.702046798	0.039355382
PLCL2	2.750284822	1.183126082	6.39328869	0.018739048
PIGQ	0.550956018	0.315406457	0.962416992	0.036209399

PIAS2	1.452611124	1.033928604	2.040836348	0.031373281
PHKA2	1.779587473	1.017076842	3.113758413	0.043457541
PHF21A	3.206799537	1.569877008	6.550553466	0.001386271
PDZD8	2.384487358	1.424493657	3.9914393	0.000946164
PARP9	1.452533768	1.019114143	2.070282669	0.038953106
PAK2	2.312962633	1.130039719	4.734166466	0.021762534
PAFAH2	0.629492035	0.435478392	0.909942329	0.013817979
PABPC1L	1.975698959	1.12799892	3.460452228	0.017258419
P4HA1	1.726786438	1.16931239	2.550038319	0.006026251
OSBPL8	1.670111714	1.085194713	2.570297389	0.019719094
OLAH	1.172177194	1.039417213	1.321893996	0.009588192
OCEL1	0.559654372	0.340639681	0.91948482	0.021944159
OAZ1	1.603976749	1.041082478	2.471217666	0.032150756
NUP85	0.556714738	0.318660475	0.97260666	0.039634523
NUP214	2.001721329	1.064669554	3.763504146	0.031200838
NUP133	0.403814448	0.197246829	0.826710924	0.013118919
NUMB	3.273182291	1.526476514	7.018596236	0.002313405
NQO2	1.510011638	1.114758219	2.045407794	0.007777535
NONO	0.211845929	0.073312907	0.612152746	0.004150969
NOL6	0.683955547	0.477274979	0.98013768	0.038522601
NME3	0.568763227	0.392642915	0.823882454	0.002839346
NISCH	0.541527761	0.314316546	0.932984025	0.027112922
NFKB1	2.476740774	1.053207097	5.824348201	0.037637113
NFE2L2	1.99087029	1.138710009	3.480749692	0.015706316
NEIL2	0.663557923	0.45745555	0.962517819	0.030673892
NBEAL2	2.030208023	1.183676105	3.482155805	0.010095211
NAGPA	0.763188582	0.605565383	0.961839675	0.022044906
N4BP2L2	2.373351228	1.3984001	4.028028923	0.001362735
MZF1	0.549028941	0.31213788	0.965703932	0.037425964
MYO9A	0.609145249	0.417058975	0.889701354	0.010328997
MYD88	2.100038616	1.100345234	4.007980452	0.024452867
MXD3	1.529429295	1.008425293	2.319610572	0.04556021
MXD1	2.34963978	1.027597444	5.372538756	0.042920807
MRPL43	0.557995668	0.325541697	0.956434057	0.0338395
MPV17	0.644210724	0.431323921	0.962171207	0.031684441
MPO	1.19031475	1.049394842	1.350158346	0.006730026
MPEG1	0.668993369	0.456499326	0.980400412	0.039257808
MMRN1	1.31880345	1.043012489	1.667518422	0.020789786
MGMT	0.690911316	0.516432962	0.924337683	0.012782928
MEFV	1.672376478	1.025209964	2.728068574	0.039428709
MED29	0.308640715	0.125236591	0.760633052	0.01063408
MED12	1.841139719	1.028500312	3.295862361	0.039922066
MAGOH	0.537732323	0.293564523	0.984982957	0.04454127
MAEA	2.339465209	1.138233565	4.808413344	0.020766302

MAD1L1	0.604807231	0.383896571	0.952839422	0.030137988
M6PR	0.551599796	0.332608417	0.914776415	0.021161468
LZTR1	0.588901994	0.361089415	0.960442329	0.033863598
LRRC47	0.489727839	0.260476106	0.920749932	0.02667171
LRP10	2.280894778	1.142784131	4.552461701	0.019362439
LPAR2	1.647913061	1.006308042	2.698594606	0.047149794
LMNB1	1.52516384	1.037833304	2.2413279	0.031632125
LITAF	3.212227833	1.371536544	7.523246605	0.007197454
LIMK2	1.366156797	1.006971792	1.85346244	0.045005597
LILRB3	2.311620641	1.187594299	4.499507948	0.013666212
LFNG	0.626578824	0.396129253	0.991093235	0.04569436
LETMD1	0.565846913	0.355783272	0.899937558	0.016158996
LDLR	1.334420123	1.028915541	1.730634823	0.029641076
KLHL6	1.771632709	1.114143788	2.817125123	0.015661558
KIF5C	0.576092219	0.369911153	0.89719448	0.01469059
KIF1B	1.566237569	1.025006607	2.393252984	0.03806604
KIAA2026	0.507229357	0.285160188	0.902235415	0.020883281
KIAA0040	2.02516121	1.204849046	3.403976573	0.00773745
KDM2A	4.089534137	1.705396247	9.806688319	0.00159867
KBTBD2	3.348556373	1.496462294	7.492891624	0.003272626
ITGAX	1.653251234	1.01698366	2.687594453	0.042570969
ITGAM	2.026878327	1.25400924	3.276080925	0.003927814
ITFG2	0.709638566	0.533646064	0.943672087	0.018342021
IQGAP1	2.525414055	1.44613225	4.410188726	0.001126659
INTS9	0.370402778	0.186790107	0.734504737	0.004464338
INTS10	0.469182731	0.221054973	0.995826657	0.048740411
IMP3	0.610772815	0.410231524	0.909348525	0.015185575
IL4R	1.380944551	1.068545133	1.784676935	0.013639524
IL1R2	1.374731089	1.05001395	1.799867105	0.020615596
IL1B	1.370994203	1.005020407	1.870235758	0.046418033
IL11RA	0.6166355	0.403628194	0.942053468	0.025349146
IGSF6	1.574353666	1.008968839	2.456557	0.045576142
IFT57	0.674500722	0.46812007	0.971868656	0.034593569
IFNGR2	2.466404701	1.119438254	5.434111373	0.025096944
IFITM3	1.262547168	1.005748093	1.584915112	0.044498426
IFITM1	1.681496548	1.096712911	2.578095517	0.017156119
IFFO2	0.574130486	0.391852371	0.841198981	0.004409408
IFFO1	0.694340984	0.488533978	0.986849275	0.041975044
IDH3B	0.254284245	0.119145987	0.542699579	0.00039993
HVCN1	0.777245119	0.636405599	0.949253081	0.013490846
HTATIP2	2.281477051	1.253829244	4.151392671	0.006921864
HSPA1L	2.127474914	1.134692622	3.988877186	0.018573901
HPS6	0.532937106	0.286067631	0.992848992	0.047415271
HMMR	1.215907215	1.015953126	1.455215126	0.032955536

HMGB2	1.813876588	1.151354736	2.857632121	0.010237346
HLA.DRA	0.590162906	0.38425945	0.906398672	0.016001935
HLA.DPA1	0.741344503	0.608855784	0.902663137	0.002888081
HLA.DMB	0.790589751	0.655866303	0.952987143	0.013695617
HLA.DMA	0.723006114	0.550177207	0.950126313	0.019963992
HIF1AN	0.42669059	0.199794486	0.911260683	0.02780689
HIF1A	1.61851298	1.15176639	2.274405894	0.005537543
HCK	1.878132418	1.059952563	3.327867211	0.030815201
HAUS7	0.668499411	0.487144099	0.917370165	0.012628306
GRAMD1A	1.971264828	1.21934019	3.186875208	0.005621166
GPSTM1	0.610910118	0.394130105	0.946923787	0.027534529
GNPTAB	0.504705463	0.300108675	0.848784544	0.009933969
GNAI3	1.749588796	1.09221598	2.802615062	0.019971071
GMPT2	2.372489243	1.096530694	5.13319439	0.02823663
GGH	1.464962888	1.05286508	2.038358288	0.023473728
GEMIN5	0.463765454	0.260600009	0.825319988	0.008980734
GBP2	1.715375771	1.117205955	2.633815208	0.013642185
GATA3	0.484067306	0.297292334	0.788184322	0.003535218
GALNT11	0.44688933	0.225996723	0.883685703	0.020589116
FYCO1	0.35031882	0.201276847	0.609723758	0.000207427
FURIN	1.683611731	1.036606171	2.734450689	0.035269081
FOSL2	1.808627551	1.051319825	3.111454324	0.032292915
FLOT2	1.795076023	1.001840585	3.216377911	0.049281993
FKBP15	1.921864569	1.084503247	3.405765203	0.025231159
FCGR2A	2.608962588	1.462311468	4.654744174	0.001168317
FBXO21	0.633468162	0.434233453	0.92411561	0.017809019
FBXL5	2.149649784	1.180659929	3.913907875	0.012309101
FBXL16	0.630344099	0.40551563	0.979823349	0.040312595
FAM50B	0.704354207	0.5339662	0.929112833	0.013127177
FAM117B	0.778385453	0.632362359	0.958127733	0.018103814
F5	1.403590069	1.017826592	1.935560632	0.038665532
EVI2B	1.710006336	1.071744066	2.728376821	0.024409174
ESYT1	0.689472931	0.487786167	0.974551874	0.03520756
ERCC5	0.494664254	0.267439881	0.914944786	0.024879885
ELF4	2.826449966	1.256681754	6.357074406	0.011990177
ELANE	1.187652235	1.051539608	1.341383453	0.005619972
EIF4G2	7.097106567	2.206075087	22.83191625	0.001012153
EIF4ENIF1	0.455811978	0.2548343	0.815292758	0.008089944
EIF3G	0.635037266	0.417443023	0.966053584	0.03389595
EFEMP2	1.517411359	1.136019439	2.026846683	0.004751132
DYNLT1	1.885464411	1.052842172	3.376551721	0.032910605
DYNC1H1	0.562085023	0.333552417	0.947196172	0.030486509
DUSP18	1.975133894	1.059142039	3.683315133	0.03229987
DRG2	0.560465974	0.316477917	0.992556168	0.047079147

DNPEP	0.61786027	0.419804593	0.90935478	0.01461224
DNAJC17	0.490870607	0.270961548	0.889255151	0.01891971
DHX33	0.335398724	0.178880369	0.628868916	0.000658789
DHX30	0.563014796	0.39712928	0.798192619	0.001256792
DHRS4L2	0.729160568	0.573438413	0.927170419	0.009969856
DHRS4	0.65408602	0.474095247	0.902410485	0.009728716
DGKQ	0.709342596	0.516614344	0.973970088	0.033752748
DGCR6	0.556890896	0.339729195	0.912866701	0.020259612
DFFA	0.746732076	0.579945937	0.961484094	0.023542416
DENND5A	2.621093973	1.223458837	5.615336948	0.013183339
DEFA4	1.170976581	1.040642343	1.317634405	0.00874999
DECR1	3.367203195	1.285390818	8.820708221	0.013476073
DDX56	0.654698695	0.430095126	0.996594372	0.048168669
DDX28	0.452503636	0.269193097	0.76064187	0.002767607
DCTN3	2.046843424	1.109705457	3.775387401	0.021835249
DCTD	0.762811643	0.595650404	0.976884427	0.031931021
DCAF6	2.001779047	1.003790709	3.991986893	0.048757365
CYP4V2	0.647975258	0.45340543	0.926040818	0.017231596
CYB561D2	0.348328579	0.182058619	0.66644908	0.001443598
CYB561	0.644799681	0.441086647	0.94259627	0.023505254
CX3CR1	0.810669017	0.672502836	0.977221538	0.027689509
CTSG	1.168192329	1.03790669	1.314832374	0.009976764
CSNK1D	2.606936737	1.336002623	5.086905546	0.004965155
CSAD	1.784775502	1.045713076	3.046173626	0.033683306
CRISPLD2	1.636720159	1.022021959	2.62113045	0.040303366
COX7C	0.547987099	0.308492533	0.973410464	0.040179771
CORO1B	0.742280758	0.558799041	0.986008714	0.039664588
COQ9	0.512740195	0.308955515	0.850939683	0.009752408
COPS7A	0.363723513	0.148873181	0.888640874	0.026486665
CHST15	1.971224628	1.034353672	3.75667109	0.039148657
CHPT1	1.411706096	1.014315774	1.964786659	0.040930113
CHCHD4	0.51475475	0.303047608	0.874359164	0.014023326
CETP	1.556425202	1.068367229	2.267440768	0.021197536
CES2	0.313053662	0.141014006	0.694984833	0.004314607
CELF1	1.661760757	1.014556335	2.721828959	0.043657211
CEACAM8	1.152005848	1.018228641	1.303359009	0.024653499
CEACAM6	1.178416427	1.036332105	1.339980947	0.012267202
CDK1	1.301525312	1.004802381	1.685871939	0.045906253
CDC20	1.171308722	1.011579903	1.356258778	0.034525273
CD86	0.835561146	0.704621137	0.990833787	0.038842239
CD74	0.6592093	0.488152316	0.890207601	0.006553221
CD53	2.358981824	1.274416573	4.366543377	0.006298404
CD44	1.632117249	1.13093398	2.355404259	0.008860853
CD4	0.827819436	0.689826314	0.993416755	0.04225956

CD244	0.722643622	0.544761271	0.95861037	0.024248875
CCNB2	1.221569281	1.045141058	1.427780008	0.011912103
CCDC93	2.594709904	1.297680937	5.188116193	0.006995643
CCDC71	0.468536501	0.293365036	0.74830476	0.001504926
CCDC12	0.416448235	0.192920544	0.898966634	0.025664201
CBY1	0.641377312	0.422775624	0.973009872	0.036740669
CBR1	0.580637731	0.394794958	0.853962717	0.005743877
CASP5	1.237361808	1.005246772	1.523073027	0.044501697
CARHSP1	1.886027402	1.076200302	3.305239142	0.02665641
CARD16	1.589599998	1.023529771	2.468739284	0.039064256
CALHM2	0.603639661	0.386887462	0.941826438	0.026146284
CACNA2D3	0.771192363	0.632152453	0.940813657	0.010423929
CA13	1.737049327	1.002637065	3.00940437	0.048912156
C11orf21	0.569302124	0.401804203	0.806623988	0.001531042
BST1	1.417040495	1.026126284	1.956877818	0.034296401
BRI3	1.989682731	1.082868251	3.655880914	0.026660372
BIRC5	1.342123694	1.052667226	1.711173261	0.017592775
BIN2	1.38774706	1.019514325	1.888979737	0.037268912
BCL6	1.400140065	1.052537617	1.862538849	0.02079736
BCL2A1	1.549605318	1.098955522	2.185053529	0.012484302
BCAT2	0.609071753	0.402276878	0.922171818	0.019139031
BBS4	0.662113725	0.469860557	0.933031253	0.018470438
BBS2	0.507370134	0.302057367	0.852236961	0.010340891
B9D2	1.981145797	1.040629311	3.771697211	0.03741574
AZU1	1.163362475	1.022267541	1.323931548	0.021800799
ARL1	0.709971406	0.507144884	0.993915967	0.045986561
ARHGAP9	2.599547847	1.252599945	5.394898055	0.010330655
ARHGAP17	0.373073912	0.182734289	0.761675021	0.006778564
ARG1	1.289555983	1.040830131	1.597719535	0.02001829
AQP9	2.578916742	1.163234524	5.717515624	0.01969056
APOL3	0.705071395	0.512901344	0.969242286	0.031367239
APEH	0.341057517	0.167464779	0.694595189	0.003035113
APBB1IP	1.971038858	1.068611438	3.635553619	0.029824286
ANTXR2	3.958787785	1.946914742	8.049659488	0.00014473
ANLN	1.330413756	1.052051103	1.682428503	0.017143422
ANKRD55	1.291297852	1.067519754	1.561985279	0.008466748
ALKBH7	0.580660014	0.343579981	0.981332063	0.042321059
AIMP2	0.65848911	0.454412549	0.954216402	0.027273187
AGER	1.639465596	1.033828732	2.599896247	0.035607776
ADRB2	0.597122108	0.380044876	0.93819134	0.025304491
ADAT3	0.561106579	0.33533869	0.93887345	0.027798543
ADAMTS15	1.731549448	1.007369144	2.976330482	0.046974471
ACOT9	1.941914588	1.149833354	3.279633743	0.013060005
ABHD10	0.593305777	0.391783605	0.898485135	0.013681573

ABCC11	1.971694063	1.058592534	3.672402131	0.03240328
AASDHPPT	0.44178789	0.235427803	0.829029272	0.010964809

Table. S2 Basic clinical information of patients in this study, including CDI.

sample	group	CDI	Neutrophil Percentage (%)	Lymphocyte percentage (%)
1	URTI	0	54.7	25.6
2	URTI	0.01213491	58.1	25
3	URTI	0.160827129	75.4	16.3
4	URTI	0.278161838	53.7	37.1
5	URTI	0.391892038	67.9	21.6
6	URTI	0.510217257	76	16.1
7	pneumonia	0.497093027	61.8	29
8	pneumonia	0.524462712	65.4	25.4
9	pneumonia	0.54700912	75.2	8.2
10	pneumonia	0.555064785	87.3	6.7
11	pneumonia	0.568615934	87.3	6.7
12	pneumonia	0.585401864	81.5	13.9
13	pneumonia	0.684154166	61.8	26.9
14	pneumonia	0.709309832	91.3	5.1
15	pneumonia	0.731770378	72.9	15.5
16	pneumonia	0.840514975	74.5	11.7
17	pneumonia	1.023990808	92.4	5.2
18	sepsis	0.536345402	91.6	5.4
19	sepsis	0.645832234	97.3	0.7
20	sepsis	0.686413371	82.9	10.5
21	sepsis	0.689717665	93.2	4.4
22	sepsis	0.831031902	91.6	3.6
23	sepsis	0.833323425	90.8	5.6
24	sepsis	0.88636221	92.1	3.5
25	sepsis	1	83.2	12.2

Table. S3 Primers used in this study.

	Primer
H-PDZD8-F	GATCATCAAGCGCAAGCACA
H-PDZD8-R	AGACGGCCTTCAGTAAGTGC
M-PDZD8-F	GCAAGTCCGCCTACCTGTTC
M-PDZD8-R	CACCTCGAAGTCAATCAGCG
H-ADRB2-F	TTGCCTCTTCATCGTGTCC
H-ADRB2-R	CCACCTGGCTAAGGTTCTGG
M-ADRB2-F	ATGTCGGTTATCGTCCTGGC
M-ADRB2-R	GGTTTGTAGTCGCTCGAACTTG
H-GAPDH-F	GGAGCGAGATCCCTCCAAAAT
H-GAPDH-R	GGCTGTTGTCATACTTCTCATGG
M-GAPDH-F	AGGTCGGTGTGAACGGATTTG
M-GAPDH-R	TGTAGACCATGTAGTTGAGGTCA

Table. S4 qRT-PCR Results in clinical samples

sample	group	PDZD8	ADRB2
1	URTI	0.766865048	1.484869298
2	URTI	1.019162003	1.733572014
3	URTI	1.185852939	1.489733005
4	URTI	0.91186394	0.840975596
5	URTI	0.890659549	0.487136175
6	URTI	1.328511223	0.636542889
7	pneumonia	1.17681408	0.503916087
8	pneumonia	1.129073607	0.370782792
9	pneumonia	1.823537417	1.086850131
10	pneumonia	1.050810758	0.193924021
11	pneumonia	1.26251694	0.392840639
12	pneumonia	1.345536153	0.437559714
13	pneumonia	1.824747012	0.690297201
14	pneumonia	1.66023596	0.432185146
15	pneumonia	1.648765731	0.354110372
16	pneumonia	2.367004584	0.846835547
17	pneumonia	2.365413577	0.312706451
18	sepsis	0.990694009	0.180586948
19	sepsis	1.391485178	0.313933075
20	sepsis	1.416398634	0.224225772
21	sepsis	1.62267462	0.446762097
22	sepsis	1.845596723	0.287606868
23	sepsis	1.680456512	0.095125084
24	sepsis	2.086926399	0.398640463
25	sepsis	2.229544299	0.229419233

Table. S5 qRT-PCR Results of animal experiment.

sample	group	PDZD8	ADRB2
S1	Sham	0.934586	0.890679
S2	Sham	0.999706	1.006501
S3	Sham	1.070307	1.115487
C1	CLP	3.199039	0.436866
C2	CLP	4.891412	0.381115
C3	CLP	5.41263	0.391906
N1	Nec-1	0.379315	0.238737
N2	Nec-1	0.332926	0.337599
N3	Nec-1	0.221405	0.106116

Table. S6 Elisa results in clinical samples

sample	group	HMGB1	CAPS8
1	Control	733.54	9.68
2	Control	2492.32	80.93
3	Control	3489.62	43.12
4	Control	1775.7	51.5
5	Control	4504.9	68.3
6	Control	1989.99	76.72
7	Control	2149.64	118.96
8	Control	1902.61	93.59
9	pneumonia	7956.85	413.5
10	pneumonia	12196.55	247.32
11	pneumonia	4897.25	1417.52
12	pneumonia	9391.15	72.51
13	pneumonia	3939.15	303.71
14	pneumonia	4396.52614	399.94
15	pneumonia	4788.10556	195.62
16	sepsis	20473.3	458.85
17	sepsis	15099.9	242.79
18	sepsis	23940.5	1737.99
19	sepsis	22214.3	116.79
20	sepsis	18201.5	204.9
21	sepsis	14635.6	91.68
22	sepsis	17531.3	1042.23
23	sepsis	7379.8954	383.6

Table. S7 Elisa results of animal experiment

sample	group	IL-1 β	IL-6
S1	Sham	38.9461	5.3393
S2	Sham	39.59618	7.4288
S3	Sham	39.59618	10.56565
C1	CLP	194.7138	4879.438
C2	CLP	93.15004	1971.857
C3	CLP	261.737	1797.874
N1	Nec-1	75.04546	1650.169
N2	Nec-1	92.44501	144.1304
N3	Nec-1	59.42184	60.12475

Table. S8 R packages used

algorithms	R package
LASSO-Cox	glmnet
Random Forest	randomForest
XGBoost algorithm	XGBoost
ROC	pROC/ timeROC
survival curves	survminer
multivariate logistic regression	autoReg
Decision Curve Analysis	Rmda
Differentially Expressed Gene Analysis	limma
GO enrichment analysis	clusterProfiler/ msigdb
ssgsea	GSVA
Correlation analysis	stats
Immunohistochemical Analysis	CIBERSORT
GSEA	fgsea