

Figure S1 The workflow of this study.

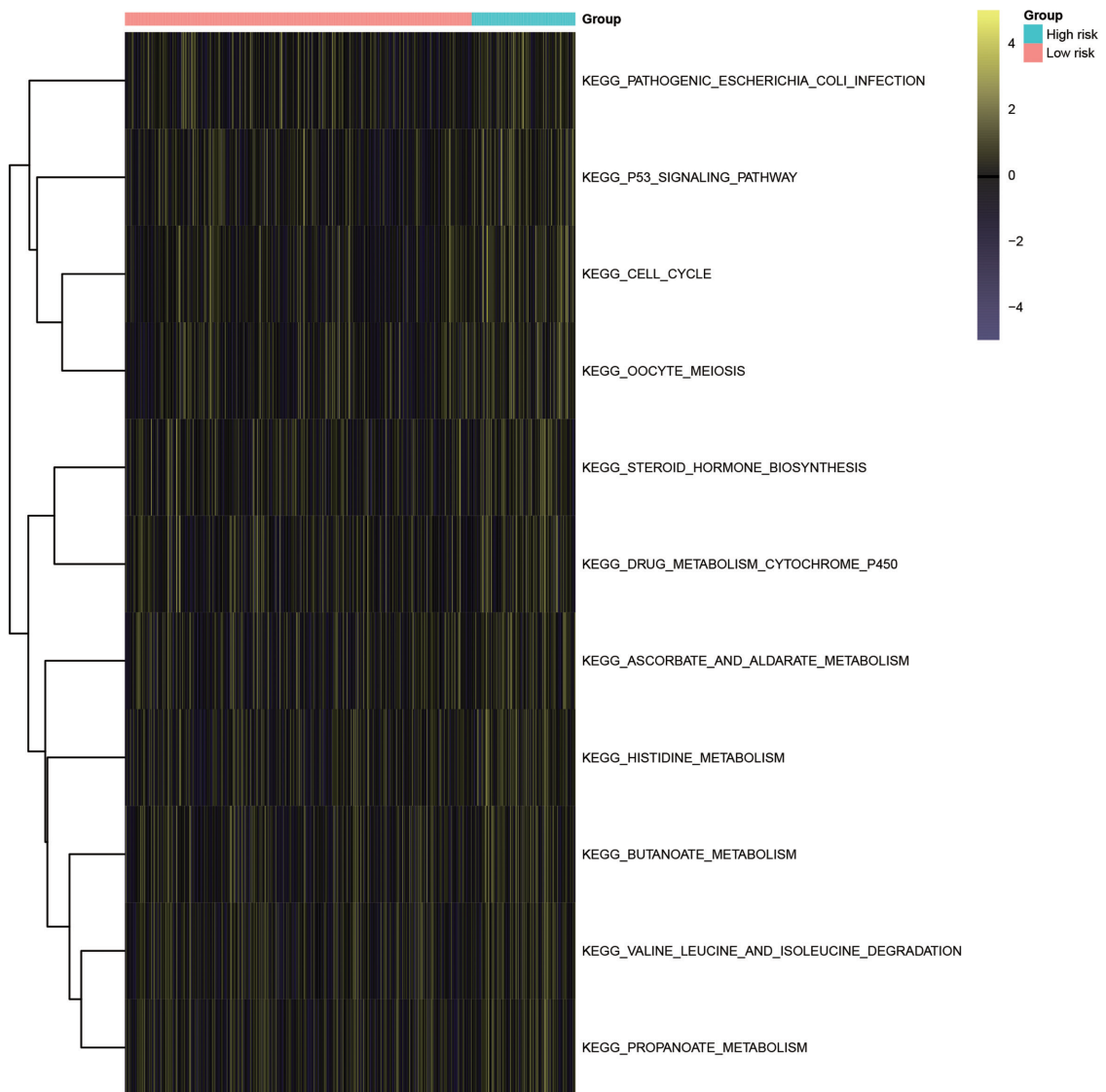


Figure S2 Heatmap shows the results of gene set variation analysis.

Table S1 The 85 prognostic immune genes in univariate Cox regression analysis

Symbol	HR	Lower.95	Upper.95	P value
<i>IGF2BP3</i>	2.6470322	1.9664637	3.563137	1.37E-10
<i>TPX2</i>	2.42549622	1.82438665	3.2246629	1.08E-09
<i>PPAP2B</i>	0.56048276	0.46178566	0.6802743	4.68E-09
<i>ITGA6</i>	0.52834878	0.4265463	0.6544481	5.15E-09
<i>RBCK1</i>	2.28553863	1.72737286	3.0240644	7.20E-09
<i>ANLN</i>	2.07838721	1.59840009	2.7025107	4.75E-08
<i>CCM2</i>	2.93507924	1.97148078	4.3696546	1.14E-07
<i>ADRM1</i>	3.88501848	2.35226334	6.4165301	1.15E-07
<i>BUB1</i>	2.42662292	1.74477733	3.3749285	1.39E-07
<i>ADH5</i>	0.33953339	0.22664442	0.5086511	1.62E-07
<i>PRKCE</i>	0.26527201	0.1605931	0.4381834	2.19E-07
<i>PRKAA2</i>	0.42232018	0.30411561	0.5864689	2.67E-07
<i>MYO6</i>	0.4210945	0.30127931	0.5885588	4.13E-07
<i>BCL2</i>	0.53669841	0.4205023	0.6850026	5.76E-07
<i>ALDH6A1</i>	0.53217808	0.41378591	0.6844446	8.96E-07
<i>AMOT</i>	0.50927902	0.38808696	0.668317	1.14E-06
<i>LIFR</i>	0.55840867	0.44105288	0.7069906	1.30E-06
<i>TGFBR2</i>	0.62389789	0.51281329	0.7590454	2.41E-06
<i>VAMP3</i>	0.371455	0.24592463	0.5610614	2.52E-06
<i>SGMS1</i>	0.36735011	0.2420137	0.557597	2.56E-06
<i>KLHL9</i>	0.39792437	0.26964004	0.5872414	3.47E-06
<i>DOCK9</i>	0.53736118	0.41302411	0.6991288	3.73E-06
<i>FNBP1L</i>	0.54086001	0.41523258	0.7044957	5.18E-06
<i>SNRK</i>	0.49929985	0.37017284	0.6734701	5.38E-06
<i>UBE2D3</i>	0.28103387	0.16149879	0.4890442	7.10E-06
<i>CTNNB1</i>	0.49211498	0.3602923	0.6721685	8.31E-06
<i>PRKD1</i>	0.44509999	0.31099921	0.6370241	9.63E-06
<i>METTL14</i>	0.29046568	0.16780037	0.5028017	1.01E-05
<i>SWAP70</i>	0.53536097	0.40556218	0.7067014	1.03E-05
<i>PKHD1</i>	0.63409475	0.51635806	0.778677	1.38E-05
<i>SNX2</i>	0.4676748	0.33184433	0.6591034	1.42E-05
<i>SOS2</i>	0.39205381	0.25668845	0.5988045	1.47E-05
<i>EPB41L5</i>	0.41166225	0.27491863	0.6164217	1.64E-05
<i>PSMG3</i>	1.86960078	1.40265317	2.4919967	1.97E-05
<i>CIB1</i>	1.988076	1.44729955	2.7309109	2.21E-05
<i>GNE</i>	0.54798428	0.41454781	0.7243719	2.39E-05
<i>TRAF6</i>	0.36242497	0.2255257	0.5824252	2.75E-05
<i>TSTA3</i>	2.30060945	1.55620624	3.4010941	2.95E-05
<i>MAP3K12</i>	2.23830607	1.52470979	3.2858804	3.90E-05
<i>RORA</i>	0.45025435	0.3078154	0.6586057	3.92E-05
<i>SOCS6</i>	0.43401895	0.29053346	0.6483675	4.58E-05
<i>FRK</i>	0.39012008	0.24806581	0.6135214	4.61E-05
<i>FCHO2</i>	0.52133633	0.38094386	0.7134688	4.72E-05
<i>ZFYVE9</i>	0.47175394	0.32692726	0.6807379	5.94E-05
<i>FAT4</i>	0.48524896	0.34088129	0.6907582	5.99E-05
<i>GAPVD1</i>	0.34381156	0.20411464	0.5791176	5.99E-05
<i>EXO1</i>	2.19780598	1.49501743	3.2309664	6.19E-05
<i>NME1</i>	1.67581314	1.30061313	2.1592506	6.54E-05
<i>SLK</i>	0.5265663	0.38427633	0.7215434	6.59E-05
<i>TCF7L2</i>	0.35470721	0.21266942	0.5916093	7.15E-05

Table S1 (continued)

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Symbol	HR	Lower.95	Upper.95	P value
<i>MEF2A</i>	0.55880891	0.41759398	0.7477776	9.02E-05
<i>WWP1</i>	0.45736425	0.30810681	0.6789271	0.0001039
<i>RAD9A</i>	2.15878912	1.46184353	3.1880091	0.0001093
<i>ACER2</i>	0.50897633	0.36120944	0.7171931	0.0001135
<i>CDK11A</i>	2.45982634	1.55194265	3.8988204	0.000128
<i>SIK2</i>	0.47182131	0.31890552	0.6980605	0.0001709
<i>MSH3</i>	0.41358261	0.26091443	0.6555811	0.0001724
<i>AMOTL1</i>	0.5684305	0.42301138	0.7638405	0.000179
<i>RALBP1</i>	0.48801402	0.33248233	0.7163018	0.0002483
<i>IFNAR1</i>	0.50493817	0.35025881	0.7279262	0.0002506
<i>ITFG3</i>	1.95107746	1.36031585	2.7983966	0.000281
<i>APC</i>	0.4859482	0.32825905	0.7193881	0.0003116
<i>CADPS2</i>	0.46410243	0.30574882	0.7044706	0.000312
<i>PRUNE2</i>	0.77480711	0.67421726	0.8904045	0.0003231
<i>SIRT1</i>	0.51695653	0.3607777	0.7407444	0.0003242
<i>GNRH1</i>	1.79271564	1.30195607	2.4684622	0.0003478
<i>TOPORS</i>	0.4756313	0.31626492	0.7153027	0.000358
<i>PTPRK</i>	0.56587282	0.41382058	0.7737944	0.0003623
<i>NFX1</i>	0.44815943	0.28811818	0.6970989	0.0003697
<i>ARHGAP5</i>	0.56112332	0.40649838	0.7745649	0.0004429
<i>ARHGEF12</i>	0.57457148	0.42152854	0.7831792	0.0004541
<i>KAT2A</i>	1.56097031	1.21621924	2.003445	0.00047
<i>PPFIBP1</i>	0.63656802	0.49275629	0.8223514	0.0005463
<i>OPHN1</i>	0.31053264	0.15937431	0.6050569	0.0005898
<i>ADD3</i>	0.58987342	0.43559633	0.7987915	0.0006443
<i>MZF1</i>	1.75684372	1.27009586	2.4301314	0.0006631
<i>RAB18</i>	0.47025744	0.30378299	0.7279606	0.0007141
<i>PLEKHA7</i>	0.6061092	0.45275446	0.8114075	0.0007679
<i>FNDC3A</i>	0.6000922	0.44551384	0.8083041	0.0007784
<i>POC1B</i>	0.39419292	0.22873725	0.6793299	0.0008014
<i>EIF5A</i>	2.09718023	1.3600544	3.2338154	0.000803
<i>RIN2</i>	0.54804656	0.38519615	0.7797457	0.0008292
<i>HSPG2</i>	0.77270944	0.66390587	0.8993442	0.0008682
<i>BMPR2</i>	0.58097394	0.42193925	0.799951	0.0008756
<i>GCLC</i>	0.46106997	0.29160876	0.7290093	0.0009258

HR, hazard ratio.

Table S2 The five prognostic independent immune genes in multivariate Cox regression analysis

Symbol	β
<i>PKHD1</i>	-0.11495
<i>IGF2BP3</i>	0.938487
<i>RORA</i>	-0.54489
<i>FRK</i>	-0.56628
<i>MZF1</i>	0.585383