**Supplementary Table 5. Seventy-eight candidate immune-related genes identified by univariate Cox regression analysis**

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| **Gene** | **Hazard ratio** | **95% Confidence interval** | ***p-*value** |
| *IGF1R* | 2.77 | 1.32-5.81 | 0.00704 |
| *NR6A1* | 2.79 | 1.3-5.98 | 0.00859 |
| *VIPR1* | 0.2 | 0.07-0.55 | 0.00195 |
| *FYN* | 0.33 | 0.16-0.65 | 0.00141 |
| *FLT3* | 0 | 0-0.07 | 0.00009 |
| *IL20RA* | 2.48 | 1.28-4.78 | 0.00691 |
| *RETN* | 0.04 | 0-0.38 | 0.00578 |
| *PSMD1* | 6.34 | 2.31-17.42 | 0.00034 |
| *STC2* | 1.88 | 1.28-2.74 | 0.0012 |
| *RLN2* | 0.01 | 0-0.21 | 0.00421 |
| *GPR17* | 0.08 | 0.01-0.52 | 0.00826 |
| *NR1I2* | 0.62 | 0.47-0.84 | 0.00153 |
| *CDK4* | 3.03 | 1.75-5.27 | 0.00008 |
| *PLXNA1* | 2.39 | 1.41-4.04 | 0.00117 |
| *PRKCQ* | 0.09 | 0.02-0.52 | 0.00698 |
| *CD40LG* | 0.15 | 0.04-0.52 | 0.0027 |
| *CTSG* | 0.38 | 0.18-0.79 | 0.00922 |
| *TSHR* | 0.01 | 0-0.35 | 0.00981 |
| *KLRK1* | 0 | 0-0.11 | 0.00102 |
| *INS* | 0.02 | 0-0.34 | 0.00685 |
| *CKLF* | 1.86 | 1.18-2.95 | 0.00776 |
| *PLAUR* | 1.82 | 1.15-2.86 | 0.00999 |
| *IAPP* | 0.04 | 0-0.42 | 0.00764 |
| *IL26* | 0.01 | 0-0.17 | 0.00292 |
| *GDF10* | 2.43 | 1.34-4.42 | 0.00359 |
| *SPP1* | 1.38 | 1.21-1.57 | 0.00001 |
| *IL18RAP* | 0.03 | 0-0.16 | 0.00008 |
| *INSL5* | 0.02 | 0-0.36 | 0.00899 |
| *NRAS* | 2.92 | 1.49-5.71 | 0.00175 |
| *BCL10* | 4.38 | 1.87-10.23 | 0.00066 |
| *NR0B1* | 1.82 | 1.23-2.7 | 0.00255 |
| *PSMD14* | 4.28 | 1.93-9.49 | 0.00034 |
| *RORA* | 0.38 | 0.2-0.71 | 0.00229 |
| *RORC* | 0.69 | 0.53-0.91 | 0.00722 |
| *SEMA6A* | 2.05 | 1.33-3.16 | 0.00121 |
| *CREB1* | 6.41 | 1.73-23.73 | 0.00539 |
| *GMFB* | 2.96 | 1.36-6.48 | 0.00649 |
| *PSMD2* | 3.06 | 1.46-6.39 | 0.00292 |
| *CAMP* | 0.01 | 0-0.22 | 0.00317 |

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| *SLC10A2* | 0.01 | 0-0.35 | 0.00932 |
| *AVPR2* | 0.05 | 0.01-0.39 | 0.00397 |
| *KLRD1* | 0.02 | 0-0.32 | 0.00596 |
| *IL33* | 0.47 | 0.29-0.77 | 0.00275 |
| *ESR1* | 0.3 | 0.13-0.68 | 0.00379 |
| *GLP1R* | 2.65 | 1.35-5.21 | 0.0048 |
| *IL21* | 0.01 | 0-0.29 | 0.00643 |
| *NR2E3* | 0.01 | 0-0.18 | 0.00256 |
| *ULBP2* | 2.56 | 1.43-4.59 | 0.00154 |
| *GAL* | 2.33 | 1.32-4.11 | 0.0035 |
| *HDGF* | 3.59 | 1.48-8.71 | 0.00478 |
| *TNF* | 0.04 | 0-0.44 | 0.00816 |
| *IL5RA* | 0.01 | 0-0.23 | 0.00471 |
| *GRB2* | 4.5 | 1.89-10.75 | 0.0007 |
| *IL7R* | 0.47 | 0.28-0.79 | 0.00418 |
| *PIK3R1* | 0.5 | 0.33-0.77 | 0.0017 |
| *CCR7* | 0.22 | 0.08-0.59 | 0.0026 |
| *AR* | 0.64 | 0.46-0.87 | 0.00524 |
| *XCR1* | 0.01 | 0-0.08 | 0.00013 |
| *ENG* | 0.55 | 0.36-0.84 | 0.00534 |
| *CXCL5* | 1.4 | 1.09-1.79 | 0.00871 |
| *IL12B* | 0.01 | 0-0.19 | 0.00301 |
| *CLCF1* | 2.16 | 1.29-3.61 | 0.00354 |
| *CSF2* | 0.01 | 0-0.16 | 0.00229 |
| *CCR8* | 0.02 | 0-0.34 | 0.00839 |
| *BMP6* | 2.64 | 1.53-4.55 | 0.00046 |
| *C5* | 0.71 | 0.55-0.91 | 0.00728 |
| *EPO* | 1.62 | 1.26-2.08 | 0.00018 |
| *GHR* | 0.56 | 0.4-0.78 | 0.00062 |
| *PSME3* | 3.94 | 1.67-9.28 | 0.00174 |
| *TNFRSF21* | 1.58 | 1.13-2.22 | 0.00785 |
| *PTGDR* | 0.01 | 0-0.13 | 0.00063 |
| *CAT* | 0.62 | 0.44-0.86 | 0.00464 |
| *LECT2* | 0.79 | 0.67-0.94 | 0.00605 |
| *KLRC4* | 0.01 | 0-0.3 | 0.00802 |
| *BRD8* | 3.99 | 1.73-9.23 | 0.00121 |
| *TAC1* | 0.01 | 0-0.3 | 0.00724 |
| *KIR3DL2* | 0.01 | 0-0.24 | 0.00464 |
| *ITK* | 0.06 | 0.01-0.4 | 0.00321 |