Fig. S1. The optimal cut-off values for mRNA expression levels of PD-L1 (A), TIM3 (B), TIGIT (C), PD-1 (D), PD-L2 (E), CTLA4 (F), LAG3 (G), and BTLA (H) in the training cohort.

Fig. S2. Kaplan-Meier survival analysis of PD-1 (A), PD-L2 (B), CTLA4 (C), LAG3 (D), and BTLA (E) in the training cohort.

Fig. S3. Correlation between ICs (A) and the impact of TIM3 and TIGIT co-expression on OS rate of ESCC patients (B) in the training cohort. The chord showed the co-expression pattern between ICs of ESCC patients. The band indicated a positive correlation between the two ICs, and the *P*-value was < 0.05, and the width represented the Spearman correlation coefficient.

Fig. S4. Subgroup analysis of PD-L1/TIM3 and PD-L1/TIGIT in training and validation cohorts. A-C: Kaplan-Meier curves of PD-L1/TIM3 (upper panel) or PD-L1/TIGIT (bottom panel) in ESCC patients with older than 60y (A), females (B), or TNM stage I/II (C) in the training cohort. D-F: The impact of PD-L1/TIM3 (upper panel) or PD-L1/TIGIT (bottom panel) on OS rate of patients with older than 60y (D), females (E), or TNM stage I/II (F) in the validation cohort.

Fig. S5. The distribution of CD4+ T cells ratio in different groups of PD-L1/TIM3 (A) or PD-L1/TIGIT (B) in the training cohorts.

Fig. S6. The prognostic analysis of CD8 and CD4 in ESCC patients. A-B: The impact of CD4 (A) and CD8 (B) expression on OS in ESCC patients was analyzed in the training cohort. The optimal cut-off values were determined by "survminer" R package (left panel). Based on the optimal cut-off values, Kaplan-Meier were drawn (right panel). (C) According to CD8(-) and CD8(+), ESCC patients were divided into two groups to plot the Kaplan-Meier curve.