**Supplemental Figures**

图表, 散点图

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**Figure S1** **The most significant marker genes for major cell types.** Marker gene expression information of different cell types. The size of the dot indicates the proportion of cells expressing this gene, and the darker the color, the higher the gene expression.

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**Figure S2 The characteristic genes of spatial cluster region.** The characteristic gene expression heatmap of spatial cluster in three samples.

图示

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**Figure S3 Subsets analysis and MIA mapping of endothelial cell. A.** Identification of subgroups of endothelial cells in ESCC. **B.** The distribution of endothelial cells in three ESCC patients. **C**. Characteristic gene expression heatmap of each subgroup of endothelial cell. **D**. Cell number and sample proportion of each cell subsets. **E.** MIA results of endothelial cells in cancer and stroma of spatial transcriptome. **F**. GSVA results of different endothelial cell subsets.

**图表

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**Figure S4 Subsets analysis and MIA mapping of B cell. A.** Classifying subgroups of B cells in ESCC. **B.** The distribution of B cells in three ESCC patients. **C**. Characteristic gene expression heatmap of each subgroup of B cell. **D**. Cell number and sample proportion of each cell subsets. **E.** MIA results of B cells in cancer and stroma of spatial transcriptome. **F**. GSVA results of different B cell subsets.

**图表

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**Figure S5 Subsets analysis and MIA mapping of monocyte. A.** UMAP of 6 subsets of monocyte and three samples distribution in UMAP. **B.** The highly expressed characteristic gene heatmap of monocyte subsets. **C.** Number of cells in monocyte subsets and three samples proportion. **D.** MIA results of the monocyte subsets distribution in the spatial transcriptome stroma and cancer regions. **E.** GSVA results of monocyte subsets.

**条形图

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**Figure S6 Subsets analysis and MIA mapping of neutrophils.**

**A.** UMAP of 4 subsets of neutrophils and three samples distribution in UMAP. **B.** The highly expressed characteristic gene heatmap of neutrophils subsets. **C.** Number of cells in neutrophils subsets and three samples proportion. **D.** MIA results of the neutrophils subsets distribution in the spatial transcriptome stroma and cancer regions. **E.** GSVA results of neutrophils subsets.

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**Figure S7 HallMarker and immune cell scoring (CIBERSORT) results of 4 spatial area.** A. The comparison of top 10 HallMarker pathways between 2 cancer regions. B. The comparison of top 10 HallMarker pathways between 2 stromal regions. C. The immune cell scores (CIBERSORT) of the two cancer regions. D. The immune cell scores (CIBERSORT) of the two stromal regions.

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**Figure S8 Epithelial cells pseudotime analysis result of T1 and N1 samples.** The epithelial cells of N1 (metastasis) are mainly distributed on the right branch.