**Supplementary Figure Legends**

**Supplementary Figure 1. Correlation of IL-8 expression with overall survival in multiple cancers.**

Kaplan-Meier analysis of the correlation of IL-8 expression with overall survival in the GEPIA website. Group cutoff: high > 75%, low < 25%. CESC: low n=73, high n=73; KIRC low n=129, high n=129; LUAD: low n=120, high n=120; ACC: low n=18, high n=19; ESCA: low n=46, high n=46; UAM: low n=16, high n=20; BLCA: low n=101, high n=101; GBM: low n=41, high n=41; SARC: low n=66, high n=66.

**Supplementary Figure 2. HBV induces IL-8 expression mainly through HBx.**

(A-C) qRT-PCR analysis of HBV total RNA expression in (A) HepG2-hNTCP cells infected with or without HBV for 5 days (dpi), (B) HepAD38 cells cultured in medium with or without tetracycline for 7 days and (C) HepG2.2.15 cells transfected with HBV siRNA for 48h. (D) qRT-PCR analysis of *IL-8* expression in HEK293T cells transfected with empty vector or HBV coding genes (HBC, L-HBs and HBx) for 48h. (Data are presented as mean ± SEM. Student's t test ***p<0.001)

**Supplementary Figure 3. Construction of IL-8 and CXCR1 overexpressed stable cell lines.**

(A) qRT-PCR analysis of *IL-8* expression in PVTT cells stably transfected with empty control (vector) and human IL-8 expression plasmid (IL-8). (B) qRT-PCR analysis of *IL-8* expression in mouse B16F10 cells stably transfected with empty control (vector) and human IL-8 expression plasmid (IL-8), data are represented as ΔCT. (C) qRT-PCR analysis of *CXCR1* expression in HUVEC endothelial cells stably transfected with empty control (vector) and human CXCR1 expression plasmid (CXCR1).

**Supplementary Figure 4. IL-8-CXCR1 axis has no effect on immune cell infiltration in lung and spleen.**

(A-E) IL-8 overexpressed B16F10 cells were inoculated intravenously into control and hCXCR1$^{tg}$ mice (control mice n=2, hCXCR1$^{tg}$ mice n=3). The lungs and spleens were collected after 2 weeks. Percentage of (A)Tregs (CD25$^+$FoxP3$^+$), (B) Macrophages (CD11b$^+$F4/80$^+$Ly6G$^-$), (C) MDSCs (CD11b$^+$F4/80$^-$Ly6G$^+$), (D) CD4$^+$ T cells, and (E) CD8$^+$ T cells in the lung and spleen of control and hCXCR1$^{tg}$ mice were determined by flow cytometry.

**Supplementary Figure 5. IL-8-CXCR1 axis creates an immunosuppressive microenvironment in the liver.**

(A-E) IL-8 overexpressed B16F10 cells were inoculated intravenously into control mice and CXCR1 mice (n=4 in each group). The livers, spleens and lungs were collected after 3 weeks. Percentage of (A)Tregs (CD25$^+$FoxP3$^+$), (B) Macrophages (CD11b$^+$F4/80$^+$Ly6G$^-$), (C) MDSCs (CD11b$^+$F4/80$^-$Ly6G$^+$), (D) CD4$^+$ T cells, and (E) CD8$^+$ T cells in the liver, spleen and lung of control and hCXCR1$^{tg}$ mice were determined by flow cytometry. (Data are presented as mean ± SEM. Student's t test *p<0.05, **p<0.01)

**Supplementary Figure 6. IL-8-CXCR1 does not affect the infiltration of macrophages and MDSCs in the orthotopic model.**

(A, B) The indicted Hepa1-6 cells were orthotopically implanted into the liver of control and hCXCR1$^{tg}$ mice (n=4 in each group). The livers and spleens were collected after 2 weeks. Flow cytometric analysis the (A) macrophages (CD11b$^+$F4/80$^+$Ly6G$^-$) and (B) MDSCs (CD11b$^+$F4/80$^-$Ly6G$^+$) proportion in the tumor and spleen of the indicated groups.