

Fig S1

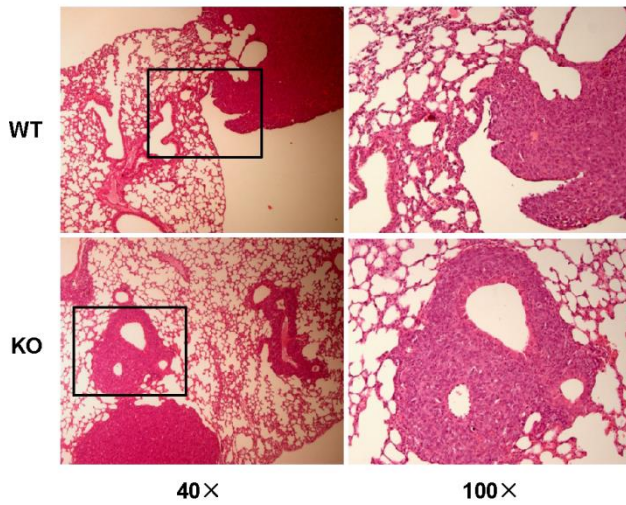
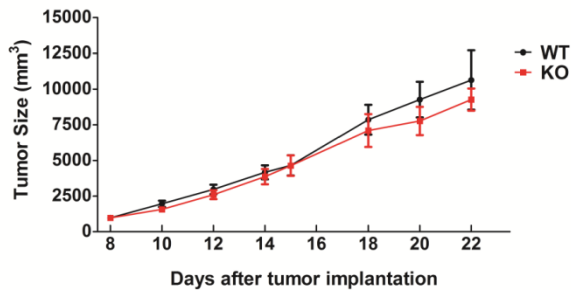


Fig. S1. Pathological section showing lungs in the LLC metastatic model. Representative H&E staining of sections of lung metastases from wild type and RNF13-KO mice. 40× magnification on the left panel and 100× magnification on the right panel.

Fig S2

A



B

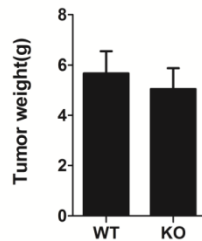


Fig. S2. Tumor growth was not correlated with loss of RNF13 function. (A) Growth curve of LLC subcutaneous tumors. (B) Tumor weight of RNF13-KO and wild type groups 22 days after bearing LLC cells (n=9).

Fig S3

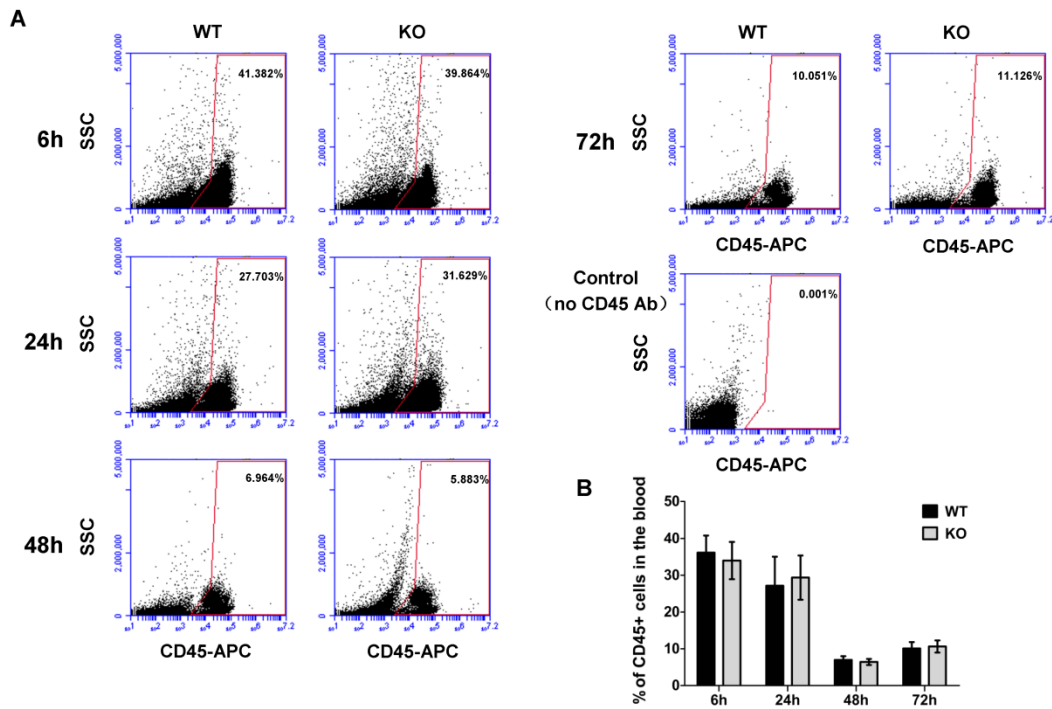


Fig. S3 The percentage of leukocytes was not increased in the blood of RNF13-KO mice. (A) Leukocytes (CD45-positive) in blood were detected by flow cytometry after bearing B16F10 cells for 6, 24, 48 or 72 hours. Note that CD45-APC cells are essentially absent in a sample without adding CD45-APC antibody (right panel). (B) Quantification showed the percentage of CD45+ cells in blood in wild type and RNF13-KO groups. (ns, 6h $P=0.7569$. $n=5$, 24h $P=0.8253$. $n=6$, 48h $P=0.7003$. $n=7$, 72h $P=0.8249$. $n=5$)

Fig S4

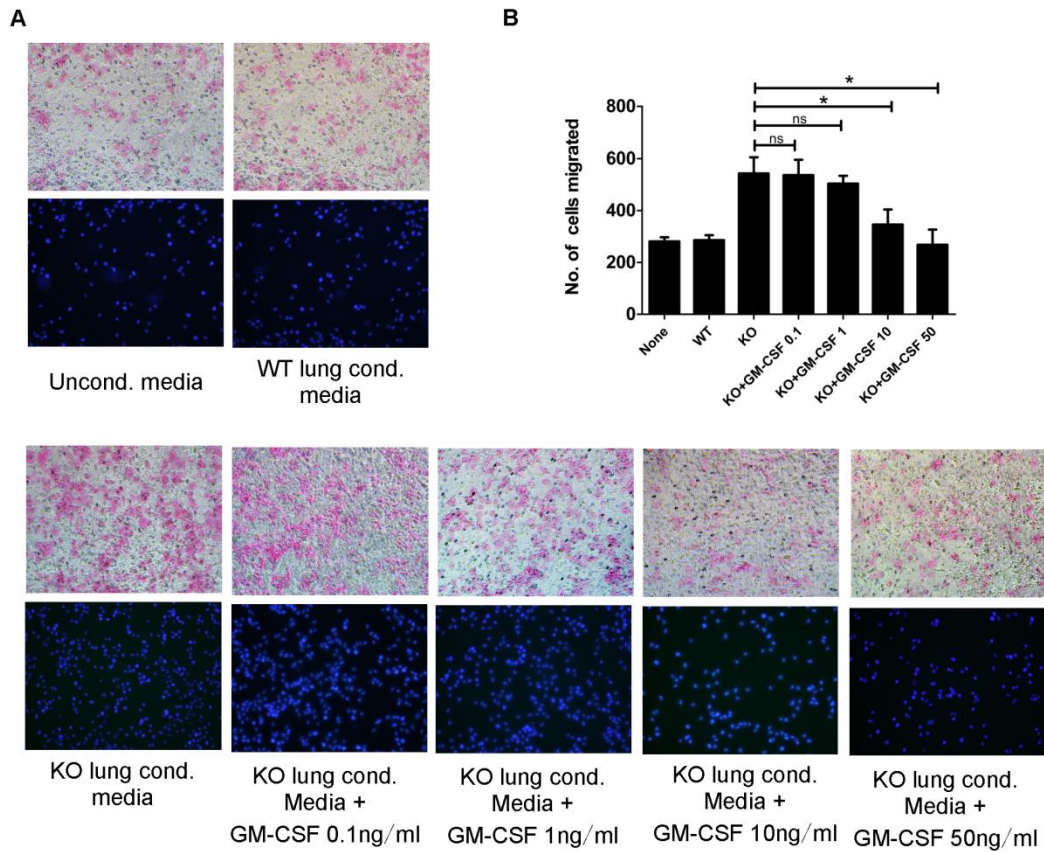


Fig. S4 GM-CSF dose-dependently rescued the enhanced invasion of B16F10 cells caused by RNF13-KO conditioned media in Transwell assay. (A) The ability of B16F10 cells to invasion was detected by Transwell assays. The lower compartment was filled with medium containing various chemoattractants. (B) Quantification showed the number of migrated B16F10 cells in each group. Addition of GM-CSF could rescue the enhanced invasion in RNF13-KO group in a dosage dependent manner. (ns, "KO vs. KO+GM-CSF 0.1" $P=0.9423$ and "KO vs. KO+GM-CSF 1" $P=0.5792$; *, $P=0.0478$; **, $P=0.0113$)

Fig S5

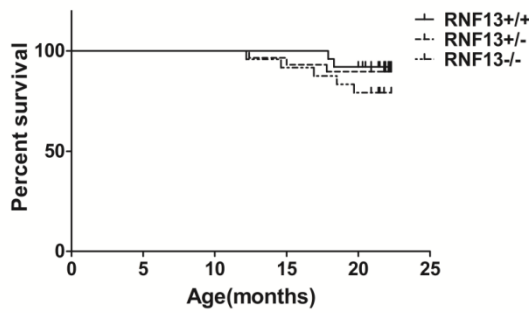


Fig. S5. Survival curves in mice with RNF13-KO (RNF13^{-/-}, n=24) heterozygous mice (RNF13^{+/-}, n=29) and in control wild type mice (RNF13^{+/+}, n= 25). The curves were developed using the Kaplan-Meier method and Log-rank Test (P=0.3562).

Fig S6

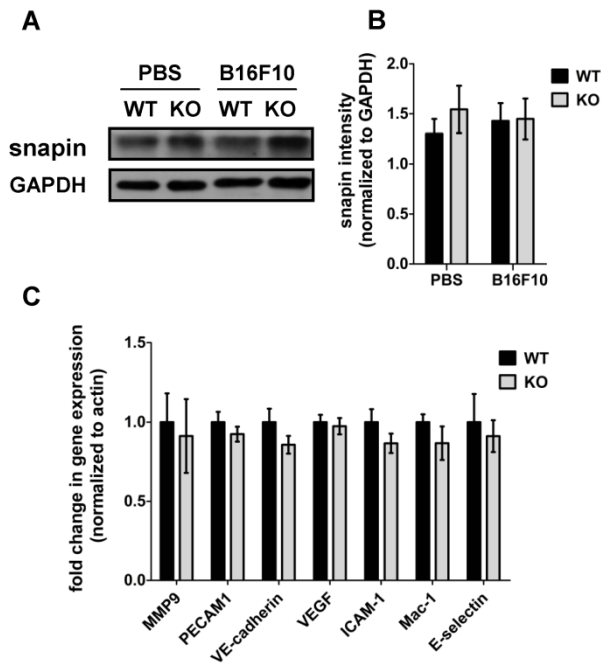


Fig. S6. Expression of metastasis related genes. (A) snapin expression in the lungs of WT and RNF13-KO mice bearing B16F10 cells or PBS as control. (B) Histograms showed the quantification in A (ns, WT-PBS to KO-PBS P=0.4328, WT-B16F10 to KO-B16F10 P=0.9428). (C) The expression of some metastasis related gene in tumor bearing lungs were determined by qRT-PCR. (ns, MMP9 P=0.7860, PECAM1 P=0.4243, VE-cadherin P=0.2441, VEGF P=0.7432, ICAM-1 P=0.2747, Mac-1 P=0.3386, E-selectin P=0.7089.)