

ADDITIONAL FILE LEGEND

Figure S1 Mouse GMSCs produced H₂S. (A) Stem cell markers profile of GMSCs analyzed by flow cytometry. (B) The efficacy of CBS and CSE siRNA analyzed by western blot. All experimental data were verified in at least three independent experiments.

Figure S2 H₂S is required in GMSCs to induced T cell apoptosis.

(A) In GMSC and T cell co-culture for 12h, GMSCs induced **Annexin V⁺ 7AAD⁻** early and **Annexin V⁺ 7AAD⁺** T cell apoptosis, while CBS or CSE siRNA treatment attenuated GMSC-induced T cell apoptosis, as assessed by flow cytometry (n=5). (B) *Cbs*^{-/-} GMSCs induced less **Annexin V⁺ 7AAD⁻** and **Annexin V⁺ 7AAD⁺** T cell apoptosis compared with control GMSCs, and treatment with NaHS elevated **Annexin V⁺ 7AAD⁻** and **Annexin V⁺ 7AAD⁺** T cell apoptosis induced by *Cbs*^{-/-} GMSCs (n=5), when T cells were co-cultured with GMSCs for 12h. (C) GMSCs promoted Treg cells differentiation, which were decreased after CBS or CSE siRNA treatment, as assessed by flow cytometry (. (D) GMSCs inhibited Th17 cells differentiation, which were attenuated by CBS or CSE siRNA treatment, as assessed by flow cytometry. * *P*<0.05, ** *P*<0.01, *** *P*<0.001. Error bars: mean ± SD. All experimental data were verified in at least three independent experiments.

Figure S3 The efficacy of FasL overexpression, as assessed by western blot. All experimental data were verified in at least three independent experiments.

Supplementary Figure 4 H₂S promoted T cells migrating to GMSCs *via* promoting its MCP-1 secretion. (A) The quantification of protein expression level according to Fig.4E. (B) The efficacy of MCP-1 siRNA analyzed by qPCR. (C) MCP-1 secretion in culture supernatant was decreased after MCP-1 siRNA treatment. (D) MCP-1 expression was upregulated in H₂S deficiency compared to control ones, and NaHS treatment decreased elevated MCP-1 in *Cbs*^{-/-} GMSCs, as assessed by western blot. (E) NaHS treatment restored decreased MCP-1 secretion in *Cbs*^{-/-} GMSCs compared with control ones. (F) The quantification of protein expression level according to Fig.4F. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$. Error bars: mean \pm SD. All experimental data were verified in at least three independent experiments.

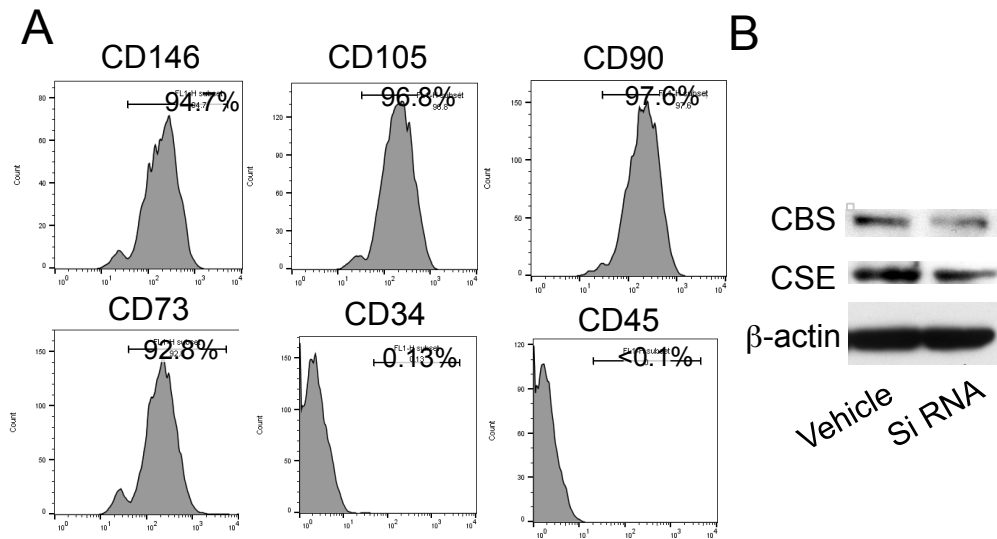


Figure S1

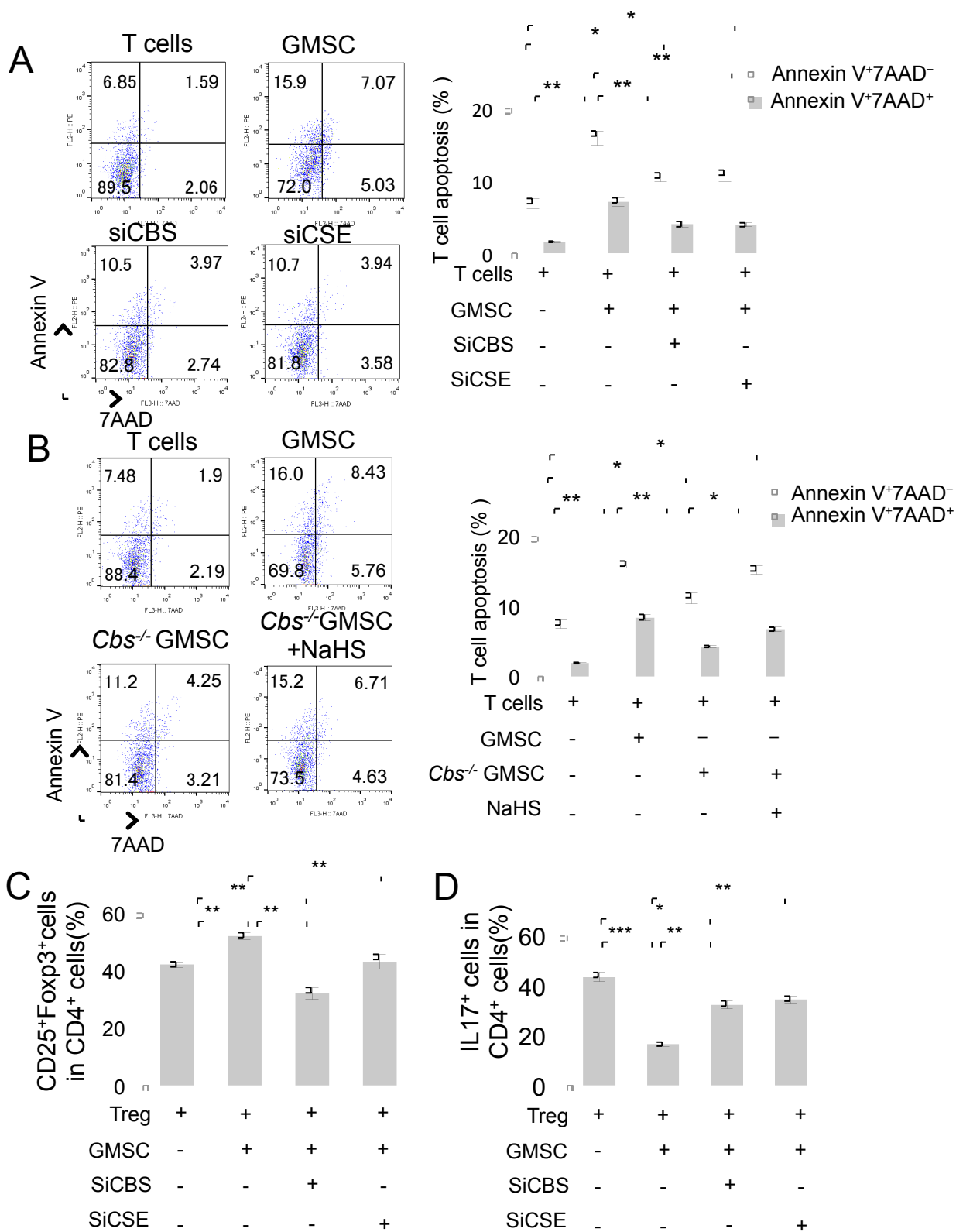


Figure S2



Figure S3

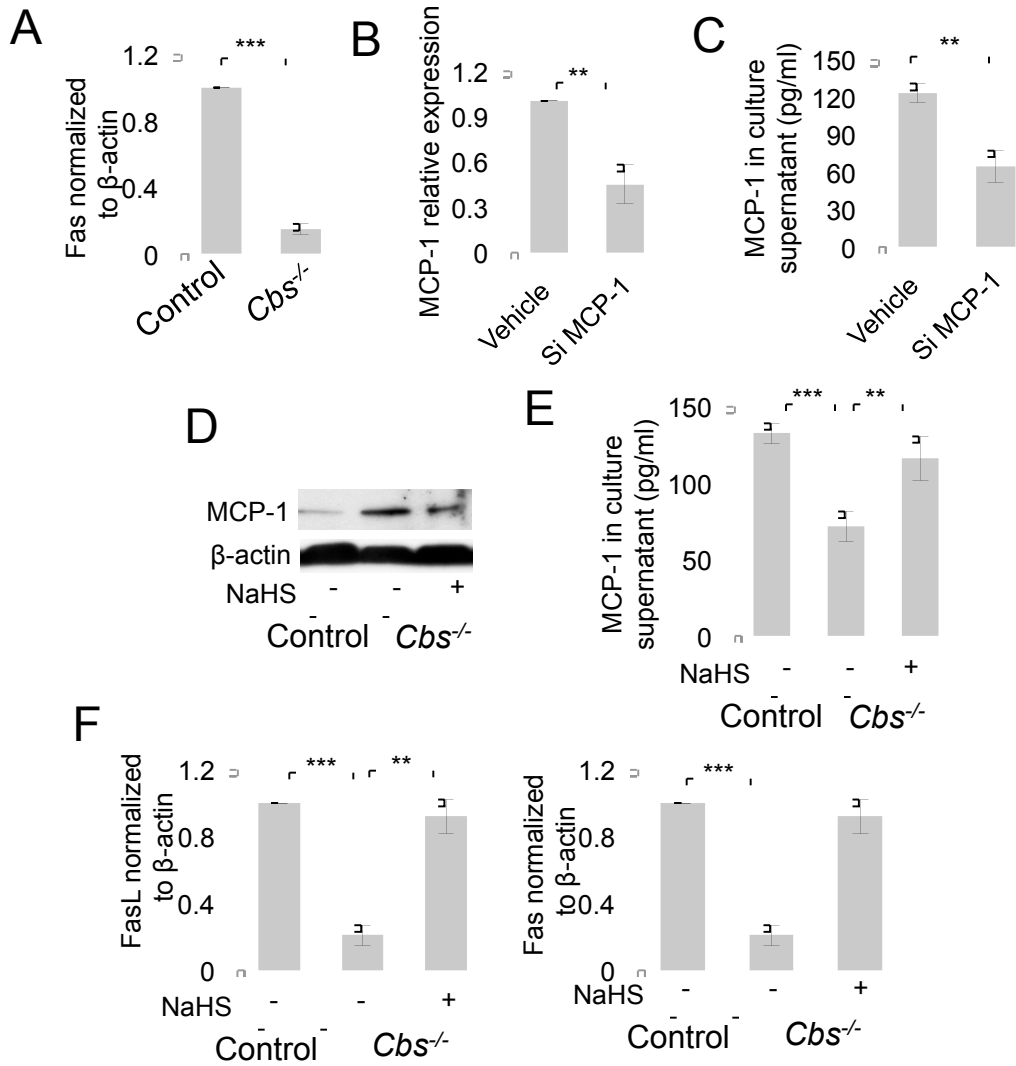


Figure S4