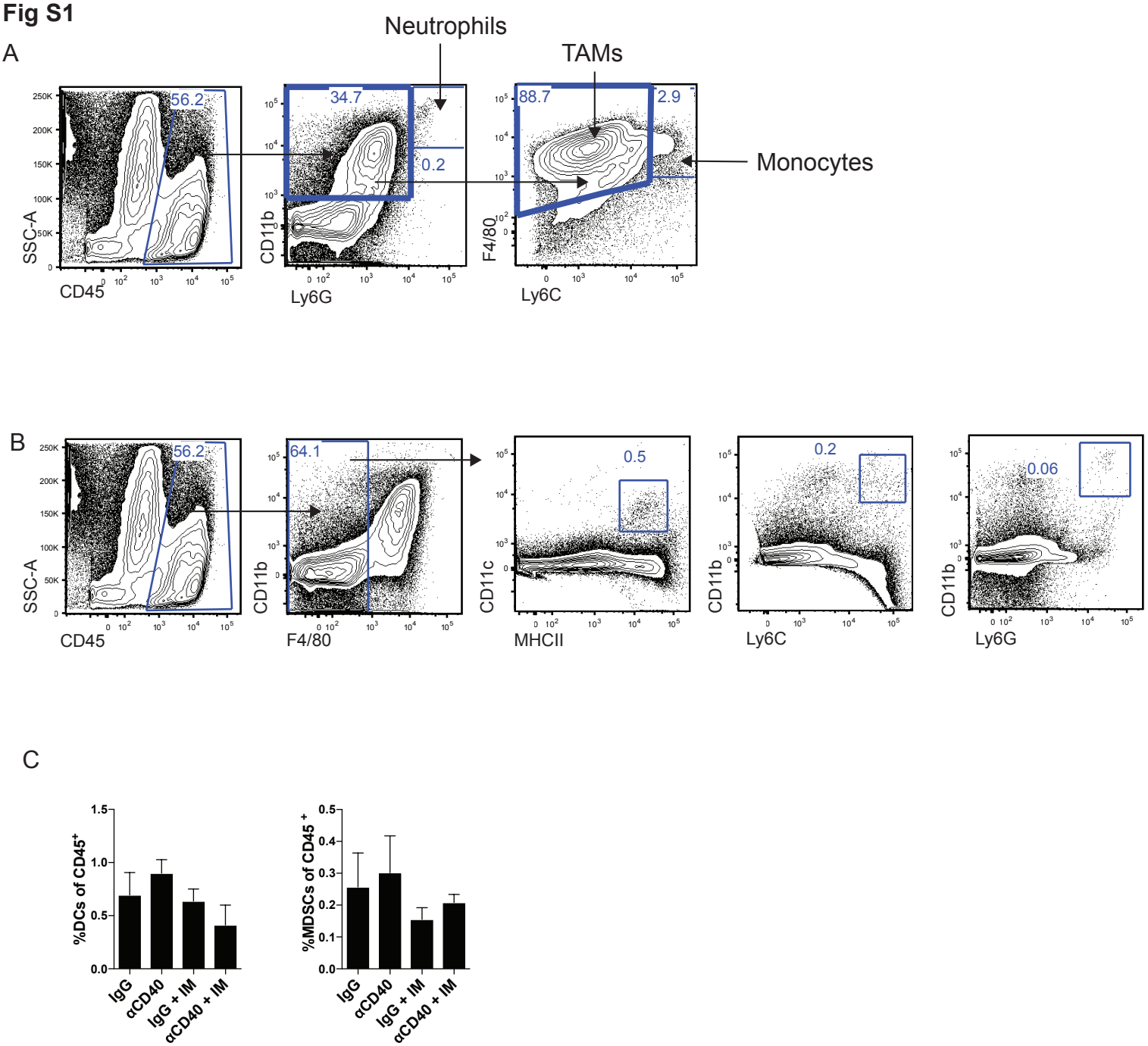
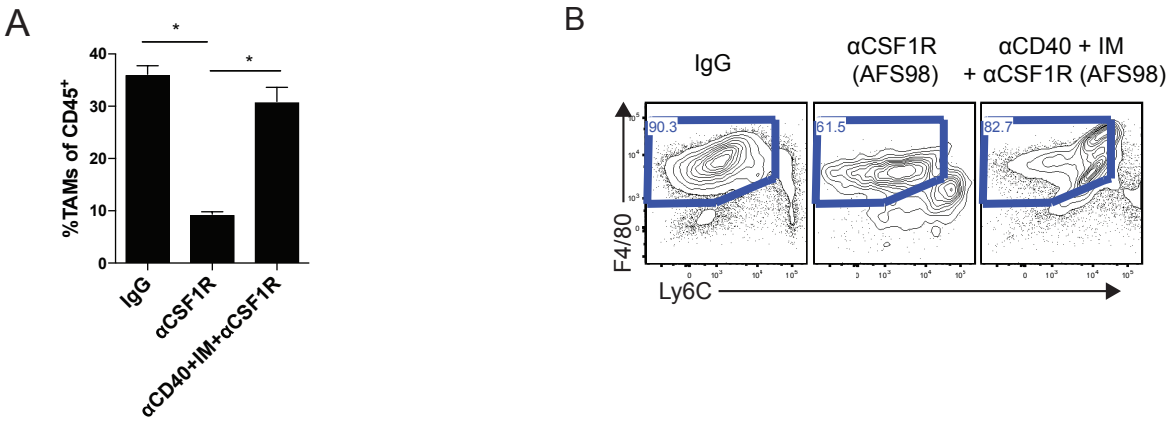
Fig S1



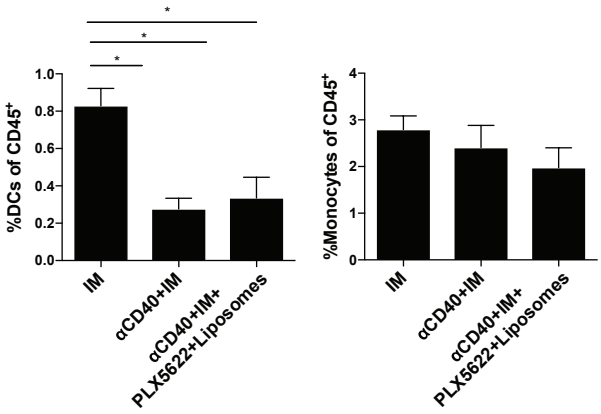
(A) Representative flow plots of TAM gating ($CD45^+Ly6G^-F4/80^+CD11b^+Ly6C^{lo}$) with exclusion of $Ly6G^+CD11b^+$ (neutrophils) and $Ly6C^{hi}CD11b^+$ cells, and monocyte gating ($CD45^+Ly6G^-F4/80^+CD11b^+Ly6C^{hi}$) in tumors from untreated $Kit^{V558\Delta/+}$ mice. **(B)** Representative flow plots of dendritic cell (DC, $CD45^+F4/80^-CD11c^+MHCII^+$) and MDSC ($CD45^+F4/80^-CD11b^+$ $Ly6C^+$ or $Ly6G^+$) gating in tumors from untreated $Kit^{V558\Delta/+}$ mice. **(C)** DCs and MDSCs as percentage of $CD45^+$ in $Kit^{V558\Delta/+}$ tumors after two weeks of treatment. Data represent mean ± SEM.

Fig S2



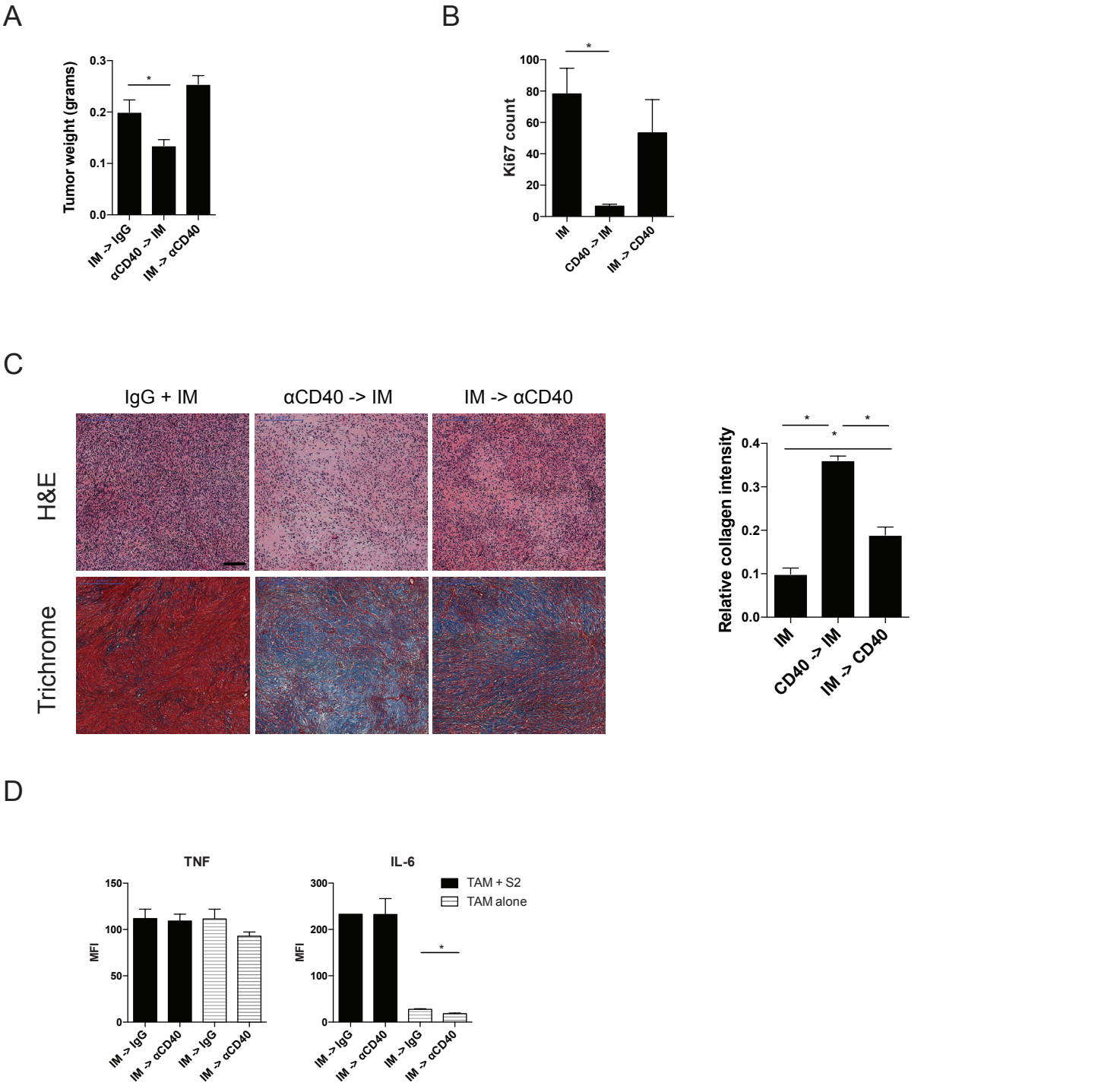
(A) TAMs as percentage of CD45^{+} cells in *Kit*$^{V558\Delta/+}$ tumors after two weeks of treatment. An antibody was used to inhibit CSF1R (AFS98). **(B)** Representative TAM flow plots. Data represent mean ± SEM.

Fig S3



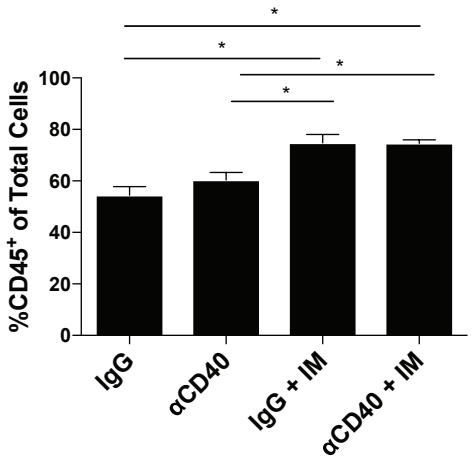
DCs and monocytes as percentage of CD45^{+} cells in *Kit*$^{V558\Delta/+}$ tumors after two weeks of treatment as assessed by flow cytometry. Data represent mean ± SEM, **P* < 0.05.

Fig S4



Kit$^{V558\Delta/+}$ mice were treated with either a single injection of αCD40 3d before or after initiation of imatinib. Tumors were analyzed at 2 weeks (4-7 mice/group). **(A)** Tumor weight. **(B)** Ki67 count representing the number of positively stained nuclei in one 800x 730 μm field per tumor. **(C)** Representative H&E and Trichrome, and quantification of collagen staining on Trichrome. Bar represents 100 μm. **(D)** TAMs from *Kit*$^{V558\Delta/+}$ mice treated *in vivo* for 4d with continuous imatinib on day 0 followed by a single injection of αCD40 on day 3 or the corresponding controls (pooled from 3-4 mice) were plated in 96-well round-bottom plates either alone or co-cultured with the S2 tumor cell line for 3d. Supernatants were harvested to measure TNF and IL-6 production with a cytometric bead array. Data represent mean ± SEM, **P* < 0.05.

Fig S5



Kit$^{V558\Delta/+}$ mice were treated for 2 weeks and intratumoral CD45^{+} cells as percentage of total cells were assessed by flow cytometry. Data represent mean ± SEM, **P* < 0.05.