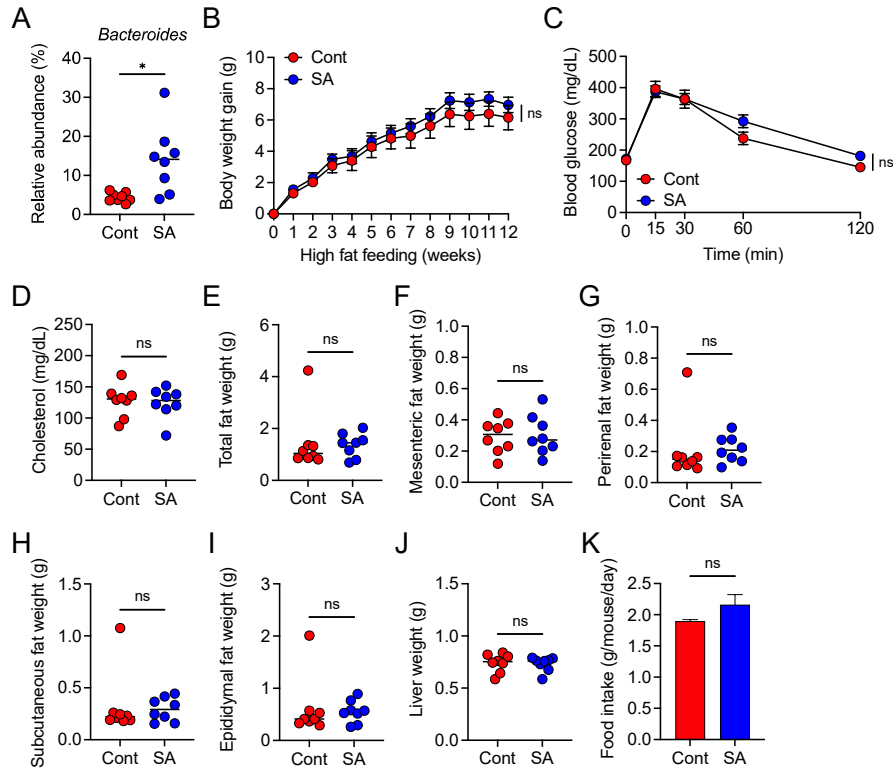
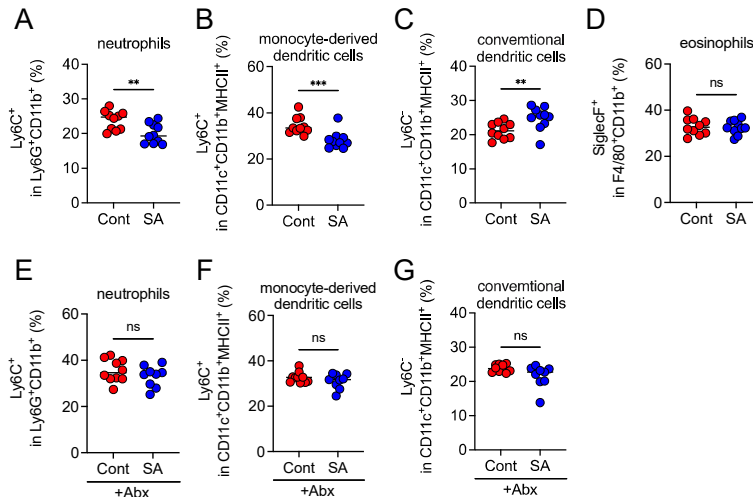


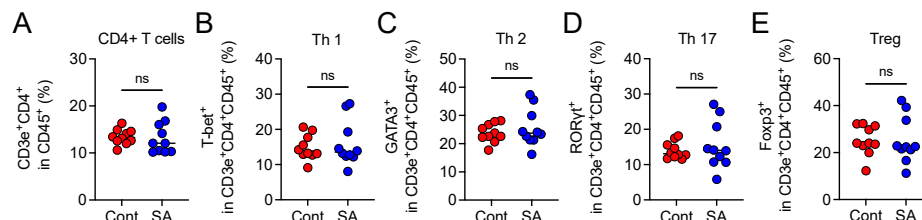
## Supplemental Figures



**Figure S1.** Dietary treatment with sodium alginate (SA) did not suppress high fat diet (HFD)-induced MetS in *Ccr2*<sup>-/-</sup> mice. *Ccr2*<sup>-/-</sup> mice were fed a HFD supplemented with or without 5% SA for 12 weeks (n = 8 mice per group). (A) Relative abundance of *Bacteroides* in the fecal samples of *Ccr2*<sup>-/-</sup> mice, maintained on a HFD supplemented with or without 5% SA for 4 weeks. (B) Body weight gain. (C) Blood glucose levels as measured via an OGTT. (D) Plasma cholesterol levels. (E) Total WAT weight. (F) Mesenteric WAT weight. (G) Perirenal WAT weight. (H) Subcutaneous WAT weight. (I) Epididymal WAT weight. (J) Liver weight. (K) Daily food intake of the mice. Each dot represents an individual mouse, and the horizontal bars indicate mean values. Statistical significance was assessed by Welch's *t*-test in (A,K); Mann-Whitney U-test in (D,E-J); unpaired Student's *t*-test in (F); and two-way ANOVA with Sidak's multiple comparisons test in (B,C). \* *p* < 0.05; n.s., not significant. Cont: HFD diet, SA: HFD diet with 5% sodium alginate.



**Figure S2.** Dietary treatment with sodium alginate (SA) influenced the population of innate immune cells in the gut of high fat diet (HFD)-fed mice. Frequency of (A) neutrophils (CD11b<sup>+</sup>Ly6G<sup>+</sup>Ly6C<sup>+</sup>), (B) monocyte-derived dendritic cells (CD11c<sup>+</sup>CD11b<sup>+</sup>MHCII<sup>+</sup>Ly6C<sup>+</sup>), (C) conventional dendritic cells (CD11c<sup>+</sup>CD11b<sup>+</sup>MHCII<sup>+</sup>Ly6C<sup>-</sup>), and (D) eosinophils (CD11b<sup>+</sup>F4/80<sup>+</sup>SiglecF<sup>+</sup>) in the colon of mice maintained on a HFD supplemented with or without 5% SA for 4 weeks. Frequency of (E) neutrophils, (F) monocyte-derived dendritic cells, and (G) conventional dendritic cells in the colons of mice maintained on a HFD supplemented with or without 5% SA for 4 weeks and subjected to Abx treatment (n = 10 mice per group). Each dot represents an individual mouse, and the horizontal bars indicate mean values. Statistical significance was assessed by unpaired Student's *t*-test in (A,D-F); and Mann-Whitney U-test in (B,C,G). \* *p* < 0.05; \*\* *p* < 0.01; \*\*\* *p* < 0.001; n.s., not significant. Cont: HFD diet, SA: HFD diet with 5% sodium alginate. Abx: erythromycin treatment.



**Figure S3.** Dietary treatment with sodium alginate (SA) did not alter the population of CD4<sup>+</sup> T cells in the colon of high fat diet (HFD)-fed mice. Frequency of (A) CD4<sup>+</sup> T helper (Th) cells (CD45<sup>+</sup>CD3e<sup>+</sup>CD4<sup>+</sup>), (B) Th1 cells (CD45<sup>+</sup>CD3e<sup>+</sup>CD4<sup>+</sup>T-bet<sup>+</sup>), (C) Th2 cells (CD45<sup>+</sup>CD3e<sup>+</sup>CD4<sup>+</sup>GATA3<sup>+</sup>), (D) Th17 cells (CD45<sup>+</sup>CD3e<sup>+</sup>CD4<sup>+</sup>RORγt<sup>+</sup>), and (E) Treg (CD45<sup>+</sup>CD3e<sup>+</sup>CD4<sup>+</sup>Foxp3<sup>+</sup>) in the colon of mice maintained on a HFD supplemented with or without 5% SA for 4 weeks (n = 10 mice per group). Each dot represents an individual mouse, and the horizontal bars indicate mean values. Statistical significance was assessed by the Welch's *t*-test in (A,C,D), and unpaired Student's *t*-test in (B,E). n.s., not significant. Cont: HFD diet, SA: HFD diet with 5% sodium alginate.