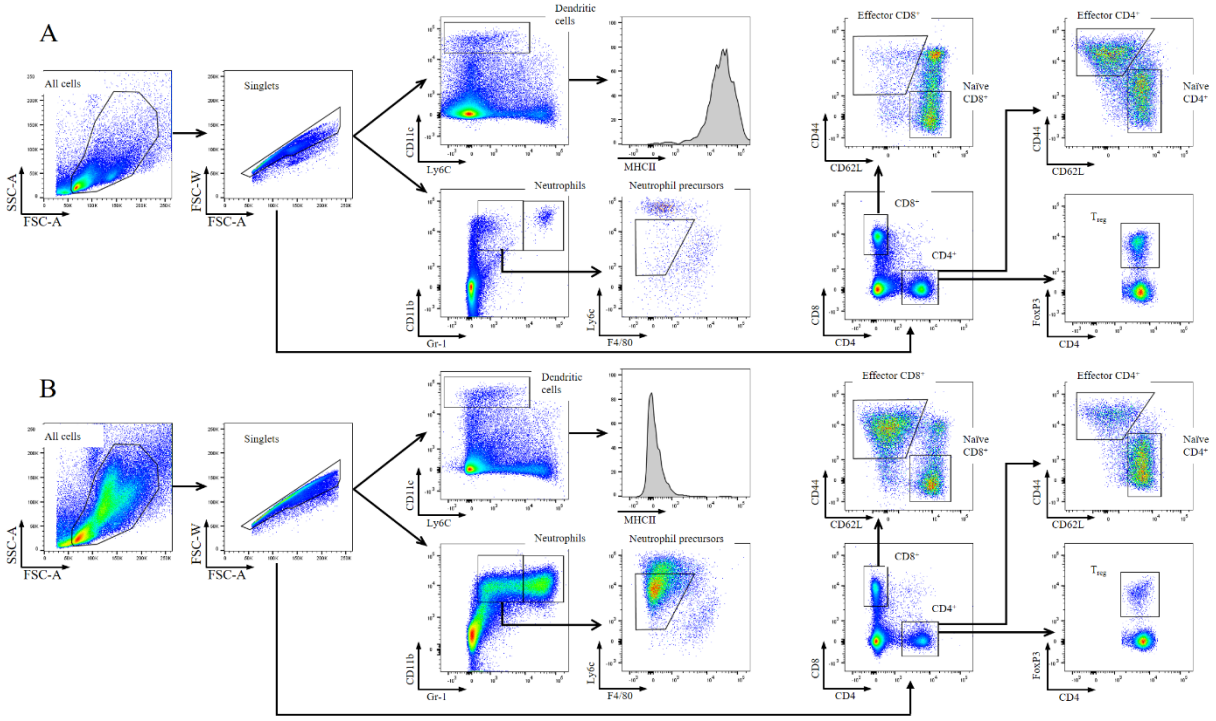
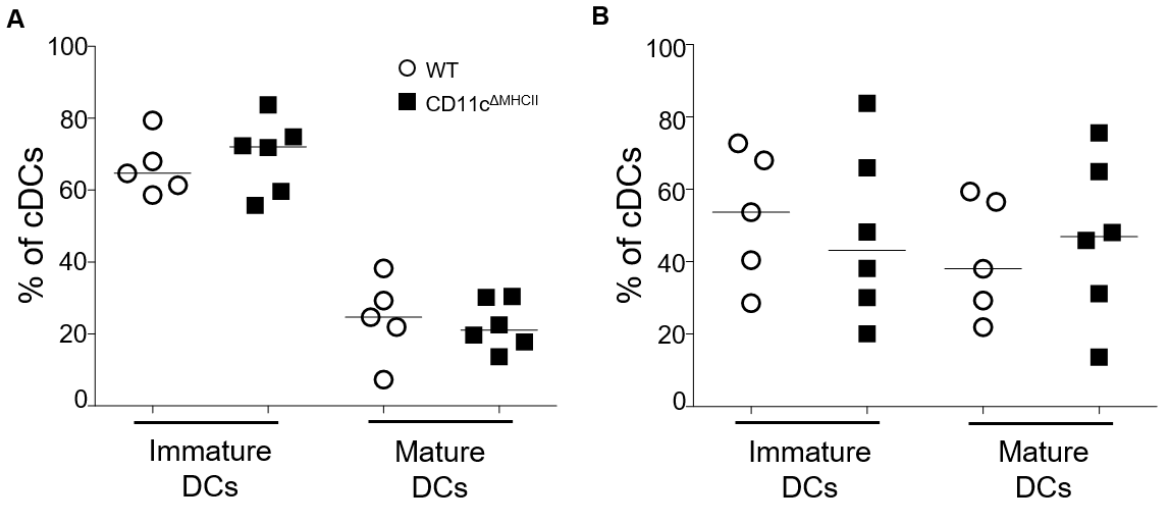
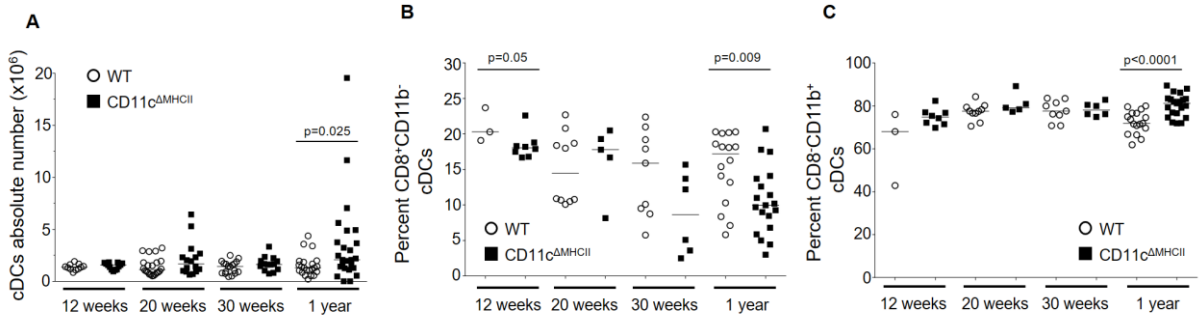
Supplementary Figure 1. Representative flow cytometry gating. Representative flow cytometry gating for dendritic cells, neutrophils, neutrophil precursors, effector and naïve $CD4^+$ and $CD8^+$, and T_{regs} for **(A)** WT mice and **(B)** $CD11c^{\Delta MHCII}$ mice.



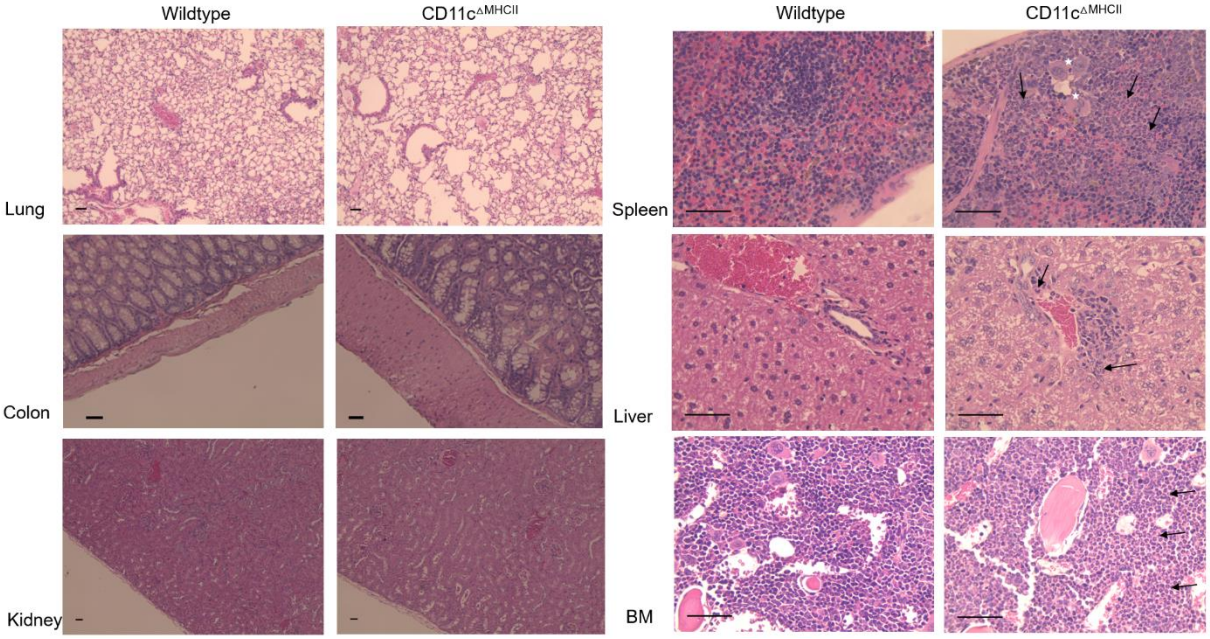
Supplementary Figure 2. Normal *in vitro* differentiation of DCs from in CD11c$^{\Delta MHCII}$ mice. Bone-marrow cells were extracted from wildtype and CD11c$^{\Delta MHCII}$ mice and cultured in medium with 20ng/ml GMCSF . On day 6 cells, some DCs were transferred into a new plate without GMCSF ("differentiated") while the rest of the DCs continued to receive GMCSF ("undifferentiated"). **(A)** Percentage of immature (CD11c^{high}CD86^{low}) and mature DCs (CD11c^{high}CD86^{high}) under undifferentiated and **(B)** undifferentiated (left) conditions from wildtype and CD11c$^{\Delta MHCII}$ mouse sources (n= 5 and 6 respectively). Median and individual data points are shown (some points represent mean of duplicate of the same mouse)



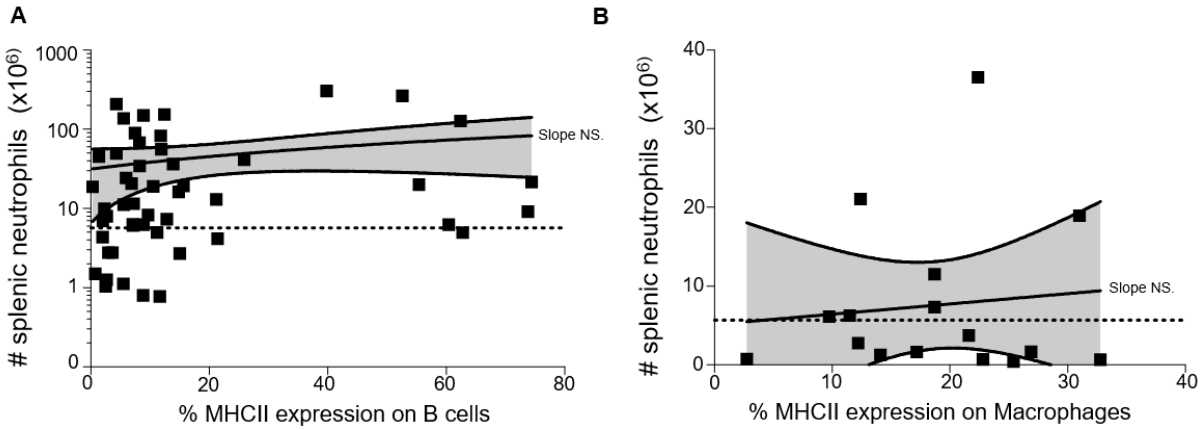
Supplementary Figure 3. Altered representation of DC subsets in CD11c$^{\Delta MHCII}$ mice. Wildtype and CD11c$^{\Delta MHCII}$ mice were assessed by flow cytometry at 12 weeks (n=3,8), 20 weeks (n=10, 5), 30 weeks (n=9, 6) and one year (n=17, 21) of age. **A)** Absolute numbers of cDCs in the spleen. **B)** Percentage of CD8^{+} cDCs (CD11c^{high} CD8^{+} CD11b^{-}) in the spleen. **B)** Percentage of CD8^{-} cDCs (CD11c^{high} CD8^{-} CD11b^{+}) in the spleen. Median and individual data points are shown.



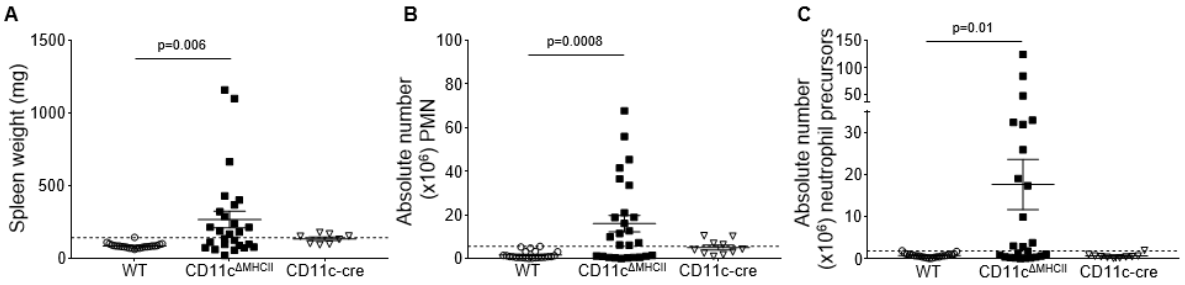
Supplementary Figure 4. Absence of lymphocyte infiltrates and presence of extramedullary haematopoiesis with granulopoiesis in CD11c$^{\Delta MHCII}$ mice. Wildtype and CD11c$^{\Delta MHCII}$ mice (n=3,5) were assessed at one year of age by haematoxylin and eosin staining of the tissues. Representative sections of lung, colon, kidney, spleen, liver and bone marrow (BM). Stars show megakaryocytes and arrows point to granulopoiesis. Bar=50µm.



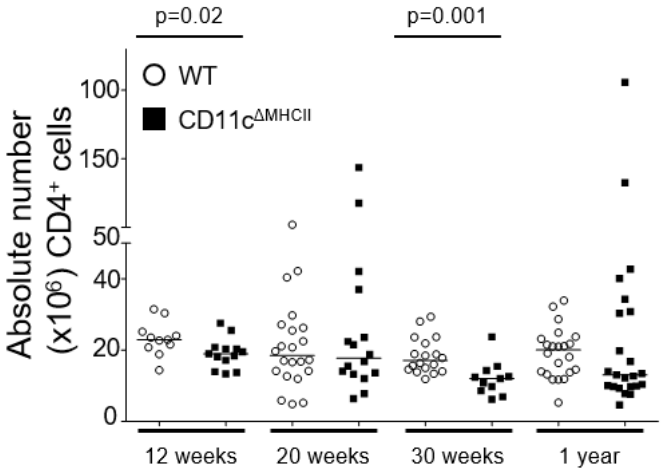
Supplementary Figure 5. Myeloproliferation is not correlated with low MHCII expression on B cells or macrophages. The cohort of CD11c-Cre MHCII^{flox} mice assessed in Figure 5 for PMN number in the spleen was assessed via flow cytometry for the leakiness of the Cre transgene through loss of expression of MHCII on B cells and macrophages. **(A)** Correlation analysis of the occurrence of myeloproliferation (absolute numbers of neutrophils in the spleen) with expression of MHCII on B cells (n=50), or **(B)** macrophages and the occurrence of myeloproliferation (absolute numbers of neutrophils in the spleen) in each individual mouse (n=16). The linear regression (plain line) is shown with the 95% CI (dashed lines). The slope of regression was not significantly different from zero. Dotted line indicates threshold for neutrophilia (two standard deviations above the mean of wildtype mice from all age group).



Supplementary Figure 6. CD11c-cre alone does not drive MPD. CD11c-cre mice were assessed by flow cytometry at one year of age. Wildtype and CD11c$^{\Delta MHCII}$ are shown for comparative purposes. **(A)** Spleen weight in milligrams (n=24,26,8). **(B)** Absolute number of PMN from the spleen (n=22,24,10). **(C)** Absolute number of neutrophil precursors (n=22,24,10). Mean ± SEM and individual data points are shown.



Supplementary Figure 7. Reduced CD4 T cells in CD11c$^{\Delta MHCII}$ mice. The absolute number of CD4^{+} T cells in the spleen of wildtype and CD11c$^{\Delta MHCII}$ mice were assessed by flow cytometry at 12 weeks (n=11, 13), 20 weeks (n=22, 16), 30 weeks (n=18, 11) and one year (n=22, 23) of age. Median and individual data points are shown.



Supplementary Figure 8. Cytokine profiling of CD4 and CD8 compartments from CD11c$^{\Delta MHCII}$. Splenocytes from CD11c^{MHCIIflox} and WT mice were analyzed by flow cytometry. Lymphocytes were gated on CD4 **(A-D)** or CD8 **(E-F)**. **(A)** Percentage of IFN-γ^{+} CD4 cells at 12 weeks (n=8,5), 20 weeks (n=14,14), 30 weeks (n=6,7), and 1 year (n=6,5). **(B)** Percentage of IL-4^{+} CD4 T cells at 12 weeks (n=11,13), 20 weeks (n=14,14), 30 weeks (n=6,7), and 1 year (n=8,9). **(C)** Percentage of IL-17^{+} CD4 cells at 12 weeks (n=9,10), 20 weeks (n=14,14), 30 weeks (n=6,7), and 1 year (n=8,9). **(D)** Percentage of IL-2^{+} CD4 T cells at 12 weeks (n=9,10), 20 weeks (n=14,14), 30 weeks (n=6,7), and 1 year (n=8,9). **(E)** Percentage of IFN-γ^{+} CD8 T cells at 12 weeks (n=9,10), 20 weeks (n=14,14), 30 weeks (n=6,7), and 1 year (n=8,9). **(F)** Percentage of IL-2^{+} CD8 T cells at 12 weeks (n=9,10), 20 weeks (n=14,14), 30 weeks (n=6,7), and 1 year (n=8,9). Displayed is median with individual values.