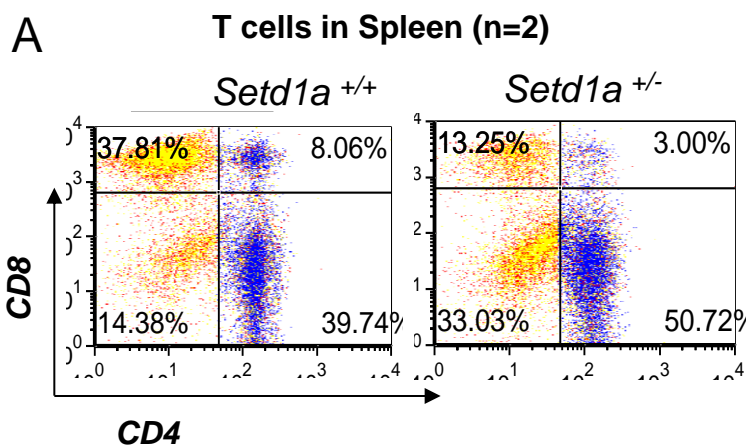


C Summary of FACS analysis comparing WT and *Setd1a*^{+/-} mice

	IgM+/ CD19+ population (%)		IgM+/ B220+ population (%)	
	<i>Setd1a</i> ^{+/+}	<i>Setd1a</i> ^{+/-}	<i>Setd1a</i> ^{+/+}	<i>Setd1a</i> ^{+/-}
1	9.96	5.26	10.01	5.60
2	6.17	4.24	6.19	4.18
3	5.63	2.8	5.71	2.9

Figure S1. Reduced *Setd1A* levels resulted in a decrease in mature B-cell population. (A) qRT-PCR analysis of *Setd1a* expression in *Setd1a*^{+/-} and *Setd1a*^{+/+} mice. **(B)** FACS analysis demonstrated a significant reduction in the level of IgM⁺/CD19⁺ and IgM⁺/B220⁺ population in the bone marrow hematopoietic cells comparing *Setd1a*^{+/-} heterozygous mice with wild type *Setd1a*^{+/+} mice. **(C)** Summary of FACS analysis comparing *Setd1a*^{+/-} heterozygous mice (n=3) with wild type *Setd1a*^{+/+} mice (n=3).



B

	CD4+/ CD8+ population (%)	
	<i>Setd1a</i> ^{+/+}	<i>Setd1a</i> ^{+/-}
1	8.06	3.00
2	7.30	2.16

Figure S2. Loss of *Setd1a* led to a decrease in T cell population in spleen. (A) Representative flow cytometry data demonstrated a significant reduction in the level of CD4⁺/CD8⁺ population in the spleen of *Setd1a* heterozygous mice compare with wild type mice. (n=2) **(B)** Reduction has been detected in two different mice.

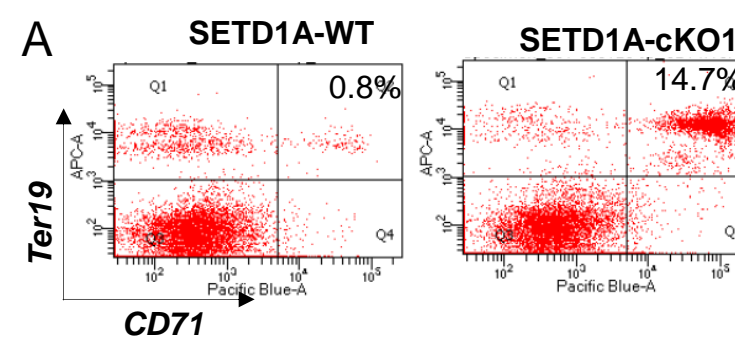


Figure S3. Reduced *Setd1a* levels resulted in an increase in BM LSK HS/PC fraction and myeloid population in spleen. (A) FACS analysis of CD71⁺/Ter119⁺ erythroid cells in spleen comparing the *Setd1a-cKO* mice with wild type *Setd1a*^{+/+} mice. (B) FACS analysis of Gr-1⁺/CD11B⁺ myeloid cells in spleen comparing the *Setd1a-cKO* mice with wild type *Setd1a*^{+/+} mice (Left). The right panel indicates the percentage of spleen myeloid cell population in the WT and *Setd1a-cKO* mice (Right).

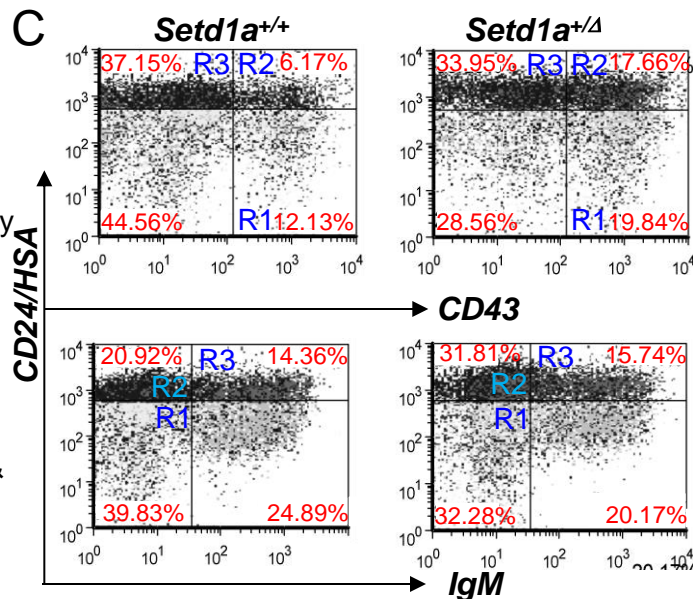
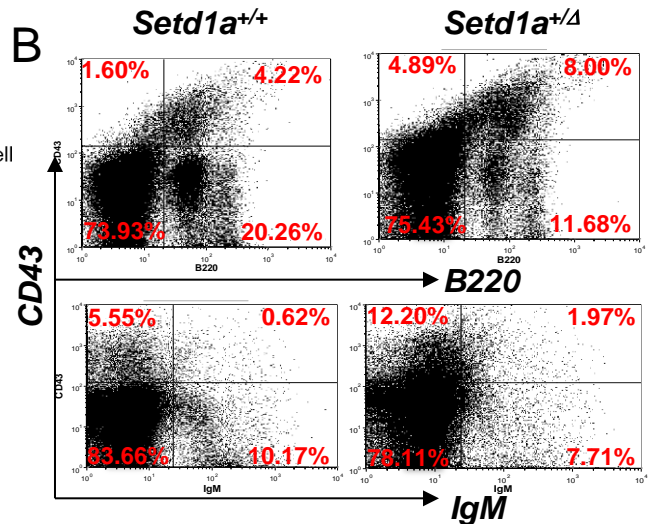
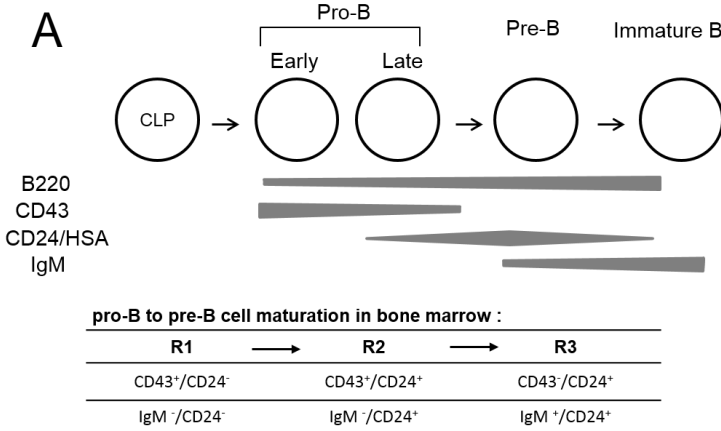
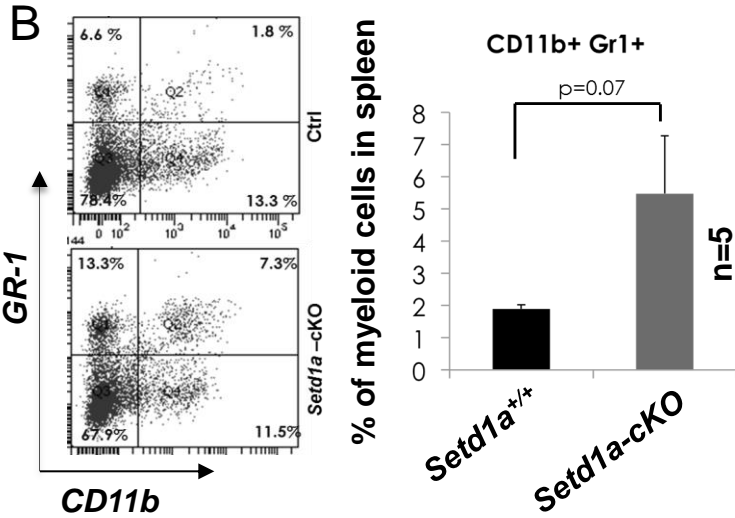


Figure S4. Reduced *Setd1a* expression led to a block of pro-B to pre-B cell development. (A) Schematic representation of B-cell development stages and the surface markers expressing in each stage in bone marrow. (B) Representative flow cytometry data demonstrated a block from pro-B (IgM⁻ B220⁺ CD43⁺) to pre-B cells (IgM⁻ B220⁺ CD43⁻) in the bone marrow of *Setd1a* heterozygous mice compare with wild type mice (n=3). (C) Representative FACS analysis of pro-B to pre-B cell development from R1 stage (CD43⁺/CD24⁻ & IgM⁻/CD24⁻) to R2 stage (CD43⁺/CD24⁺ & IgM⁻/CD24⁺) and to R3 stage (CD43⁻/CD24⁺ & IgM⁺/CD24⁺) in the bone marrow. The *Setd1a* heterozygous mice (n=3) exhibited a block in these transitional stages from pro-B to pre-B maturation.

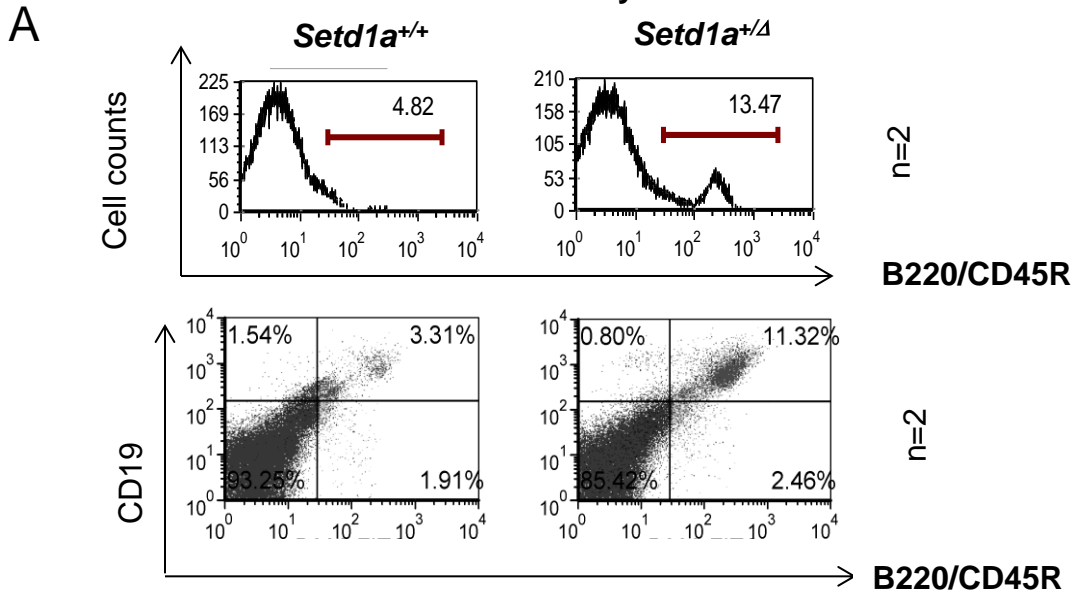


Figure S5. B cells infiltrate into thymus in the *Setd1a*^{+/ Δ} heterozygous mice. Representative FACS analysis demonstrated an infiltration of B220⁺ B cells in the thymus of *Setd1a*^{+/ Δ} heterozygous mice compare with wild type *Setd1a*^{+/+} mice.