Figure S1

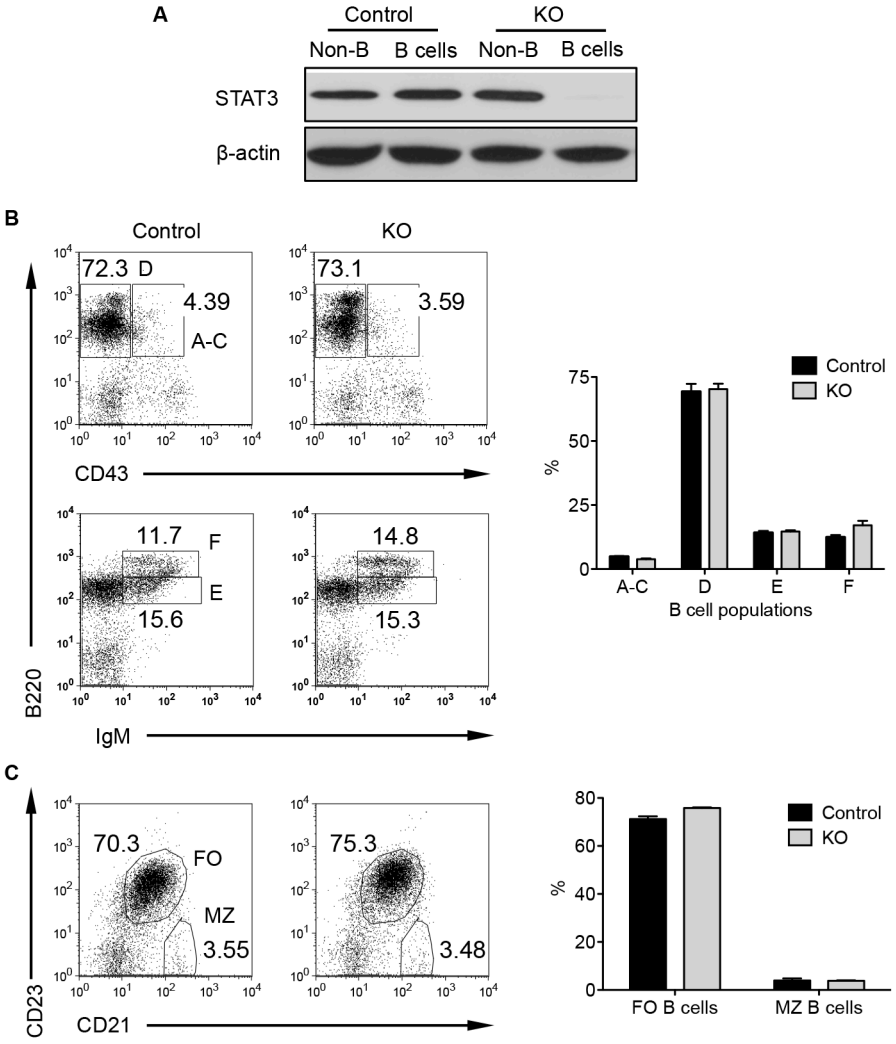

Figure S1. STAT3 is specifically deleted in B cells and STAT3 deficiency in B cells does not alter B cell development. (A) B cells and non-B cells were sorted from B cell specific STAT3 KO and control mice for Western blot analysis. (B) BM cells from B cell specific STAT3 KO and control mice were stained with B220, CD43, and IgM. Different subsets of B cells were shown. (C) Splenocytes from B cell specific STAT3 KO and control mice were stained with CD19, CD21, and CD23. Cells were gated on $CD19^{+}$ population.

Figure S2

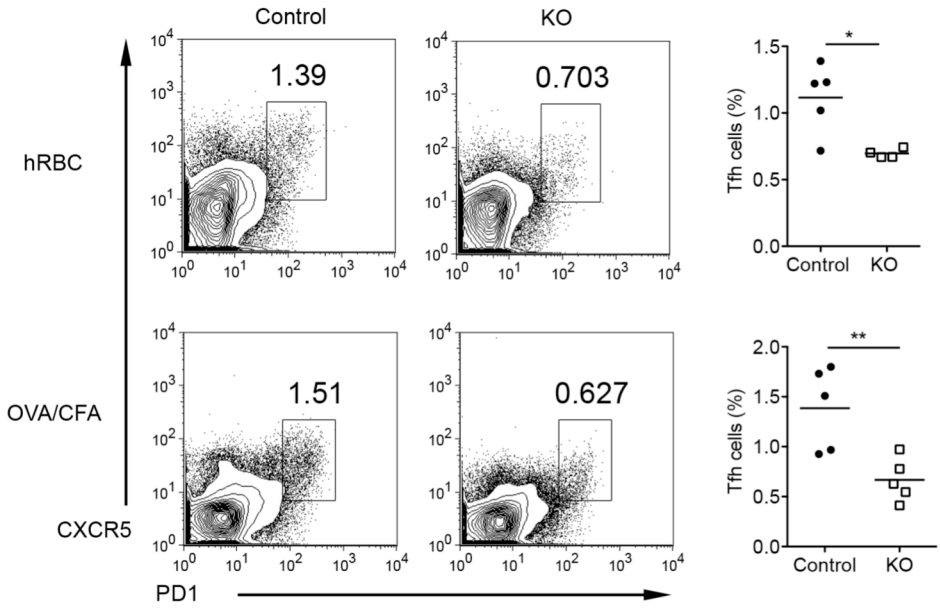

Figure S2. Tfh frequency is significantly decreased in the absence of STAT3 signaling in B cells. B cell specific STAT3 KO and control mice were immunized with hRBC or OVA in CFA. Spleens were collected at day 21 for FACS analysis. The cells were stained with CD4, PD1, CXCR5, and gated on $CD4^+$ cells. Each symbol represents an individual mouse. Data are representative of at least three independent experiments. *$*p<0.05$, $**p<0.01$.*

Figure S3

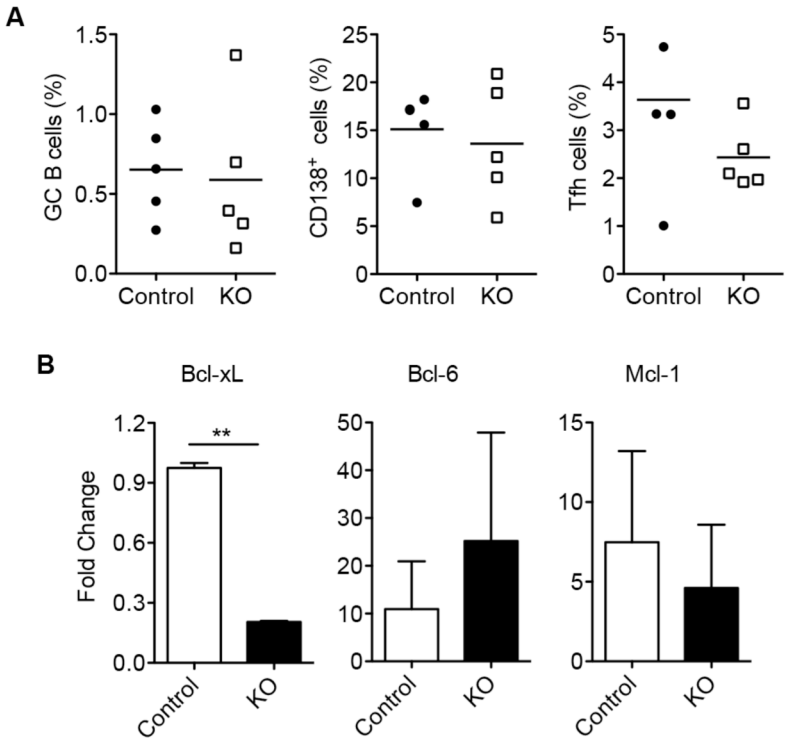

Figure S3. GC B cells are comparable in young control and STAT3 KO B6.MRL/lpr mice and have decreased Bcl-xL expression in aged STAT3 KO mice. (A) Splenotyes from 10 wks old control and STAT3 KO B6.MRL/lpr mice were stained for GC B cells, plasma cells (CD138+) and Tfh by flow cytometry. Summarized data are shown. (B) GC B cells were sorted from 6 months old control and STAT3 KO B6.MRL/lpr mice (n=3). The mRNA expression levels of Bcl-xL, Bcl-6, and Mcl-1 were determined by real-time PCR analysis. ** $p<0.01$.

Table S1. List of Primer Sequences

Genes	Primer sequences
Mouse *Bcl-6*	Forward: 5'-CCTGCAACTGGAAGAAGTATAAG-3' Reverse: 5'-AGTATGGAGGCACATCTCTGTAT-3'
Mouse *Bcl-xL*	Forward: 5'- GACAAGGAGATGCAGGTATTGG -3' Reverse: 5'- TCCCGTAGAGATCCACAAAAGT-3'
Mouse *Aicda*	Forward: 5'-GAAAGTCACGCTGGAGACCG-3' Reverse: 5'-TCTCATGCCGTCGCTTGG-3'
Mouse *Blimp1*	Forward: 5'-AGAGTGCACAGTGGAGAACG-3' Reverse: 5'-GGTGCACAAATTGCGTAAAC-3'
Mouse *Mcl-1*	Forward: 5'-GGGGACTCTTAAAGCTCCAG-3' Reverse: 5'-TTTGCTGAGAGGGAACTTTG-3'
Mouse *β-MG*	Forward: 5'- CTTTCTGGTGCTTGTCTC -3' Reverse: 5'- TCAGTATGTTCGGCTTCC -3'