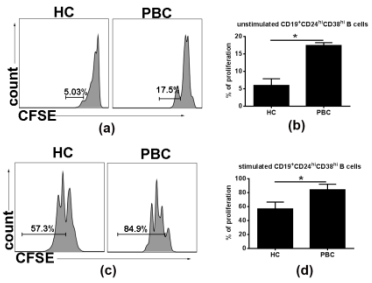
Supplementary Materials

Supplementary Figure 1: Circulating $CD19^{+}CD24^{hi}CD38^{hi}$ B subset proliferation were evaluated by CFSE staining. PBMC were isolated from PBC patients and HC and then labeled with CFSE with or without anti-BCR and CpG stimulation. (a) and (c), Representative flow cytometric histogram of CFSE level in unstimulated or stimulated $CD19^{+}CD24^{hi}CD38^{hi}$ B cells from PBC patients and HC subjects. (b) and (d), Statistical analysis of percentage of proliferation in unstimulated or stimulated $CD19^{+}CD24^{hi}CD38^{hi}$ B cells. $*P < 0.05$.

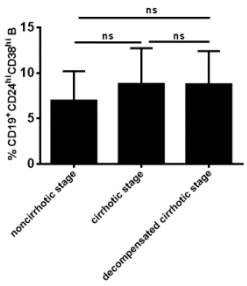
Supplementary Figure 2: Circulating $CD19^{+}CD24^{hi}CD38^{hi}$ B subset frequency in whole PBC disease stage. PBC patients were divided into noncirrhotic stage (n=21), cirrhotic stage (n=12), and decompensated cirrhotic stage (n=5), and the frequency of circulating $CD19^{+}CD24^{hi}CD38^{hi}$ B cells were assessed by flow cytometry of the three different disease stage. ns: P>0.05.

Supplementary Figure 3: $CD19^{+}CD24^{hi}CD38^{hi}$ B cells from PBC patients also promoted autologous Th1 cell differentiation. $CD19^{+}CD24^{hi}CD38^{hi}$ B cells from PBC patients and HC subjects were sorted by flow cytometry and then co-cultured with PBC CD^{+}T cells for 6 D, and Th1 cell frequency was measured by flow cytometry. The data are representative of three separate experiments. $*P < 0.05$.

Supplementary Figure 1:



Supplementary Figure 2:



Supplementary Figure 3: