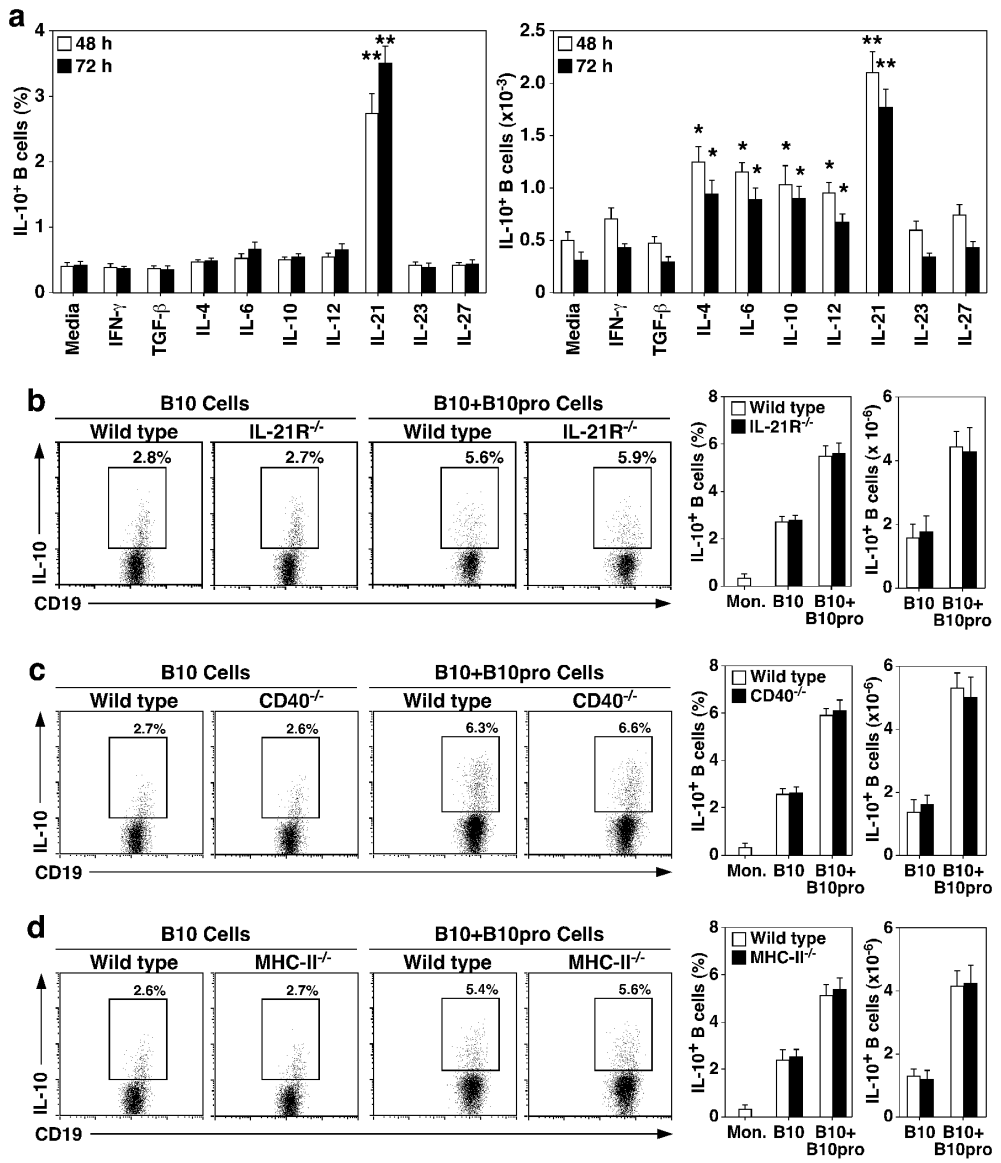
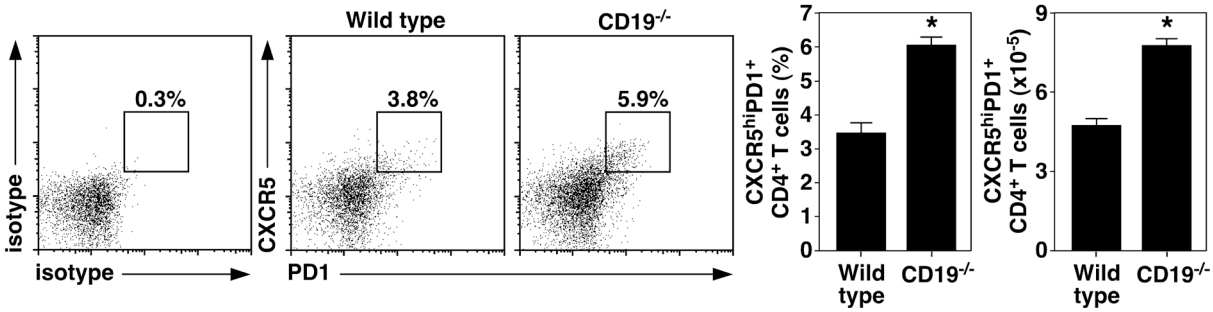
doi:10.1038/nature11501



Supplementary Figure 1. IL-21 induces regulatory B10 cell function. **a**, IL-21 induces B10 cell IL-10 production and secretion. Purified spleen CD19$^+$ B cells from wild type mice were cultured with medium alone or containing the indicated cytokines for 48 or 72 h. To visualize IL-10-competent B cells, monensin was added to the cultures 5 h before the cells were stained for surface CD19 and cytoplasmic IL-10 expression and analyzed by flow cytometry. Bar graphs indicate mean (±s.e.m.) IL-10$^+$ B cell frequencies or numbers at 48 and 72 h from individual mice in three independent experiments. Significant differences between media versus cytokine sample means are indicated: *, $p<0.05$; **, $p<0.01$. **b-d**, IL-21R, CD40 and MHC-II expression are not required for B10 or B10pro cell development. Purified spleen B cells from wild type and **b**, IL-21R$^{-/-}$ **c**, CD40$^{-/-}$ or **d**, MHC-II$^{-/-}$ mice were cultured with monensin alone or L+PIM for 5 h to quantify B10 cell frequencies. Alternatively, B10+B10pro cell frequencies were determined after culturing the cells *ex vivo* with agonistic CD40 mAb for 48 h, with L+PIM added during the final 5 h of culture. Representative histograms and bar graphs indicate mean (±s.e.m.; ≥3 mice per group) percentages and numbers of IL-10$^+$ B cells in one of two experiments with equivalent results.



Supplementary Figure 2. T follicular helper cells are present in $CD19^{-/-}$ mice. Representative flow cytometry analysis of $CXCR5^{hi}PD1^{+}$ cells among spleen $CD4^{+}$ T cells from wild type and $CD19^{-/-}$ mice. Bar values represent mean (±s.e.m.) $CXCR5^{hi}PD1^{+}$ cell frequencies among $CD4^{+}$ T cells from three mice. Significant differences between sample means are indicated: *, $p<0.05$.