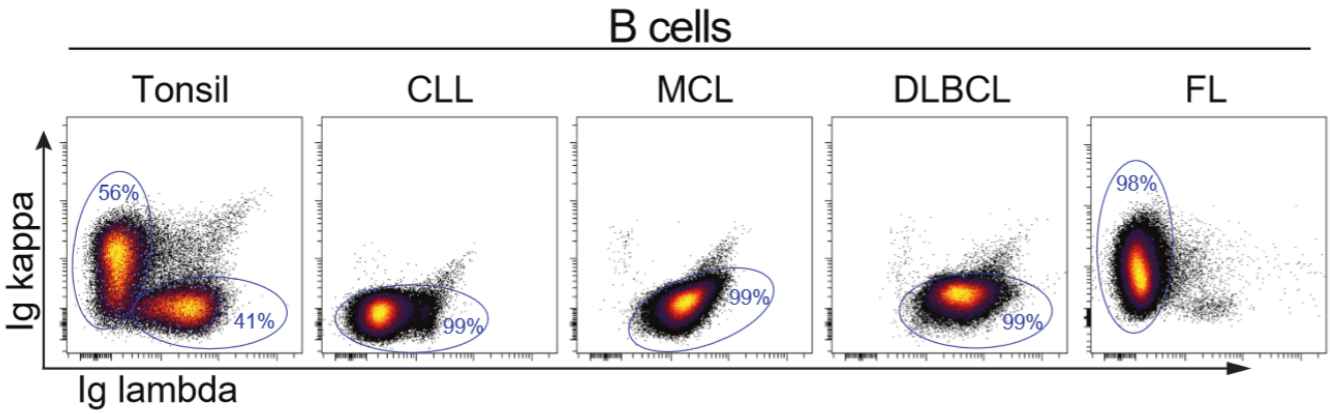
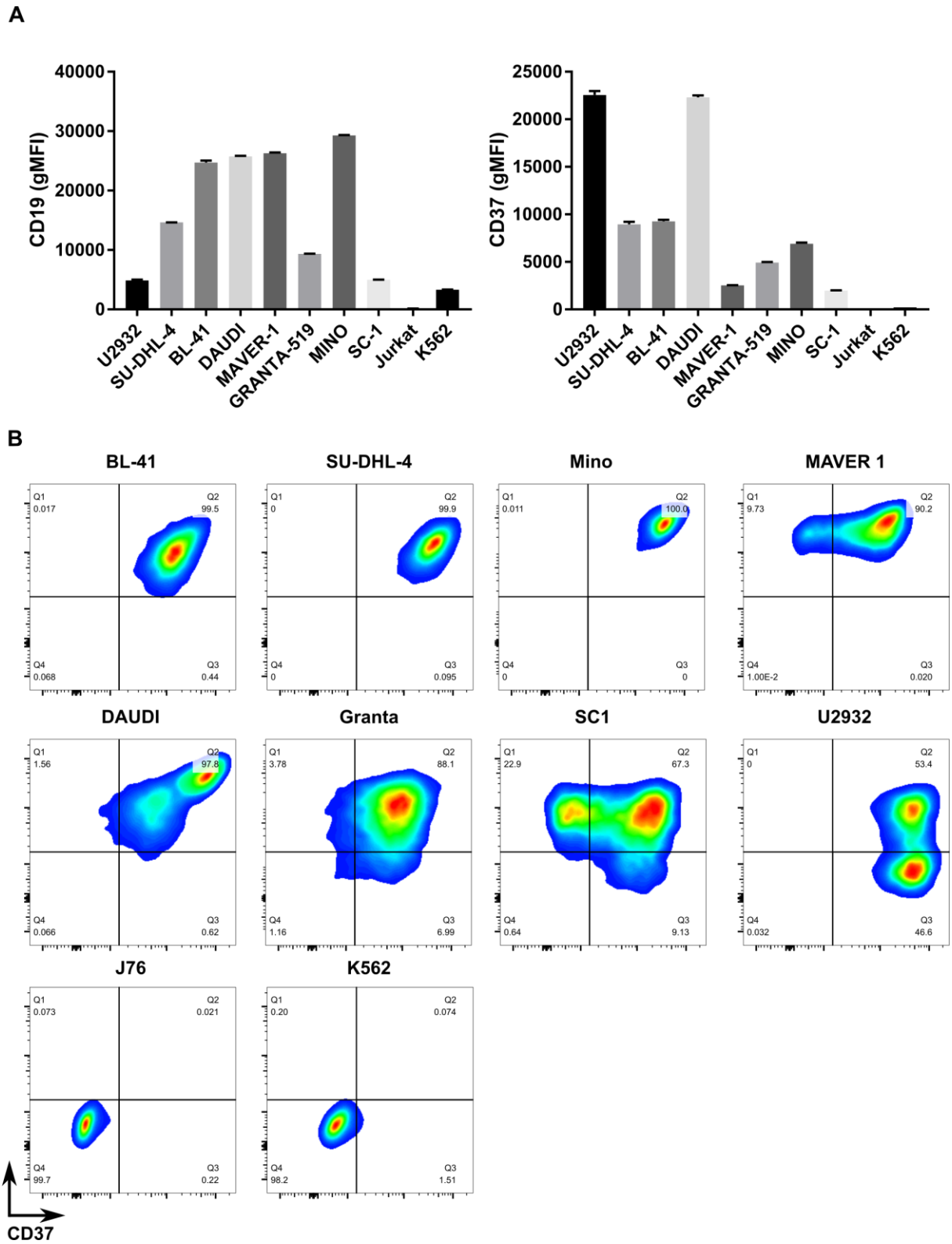
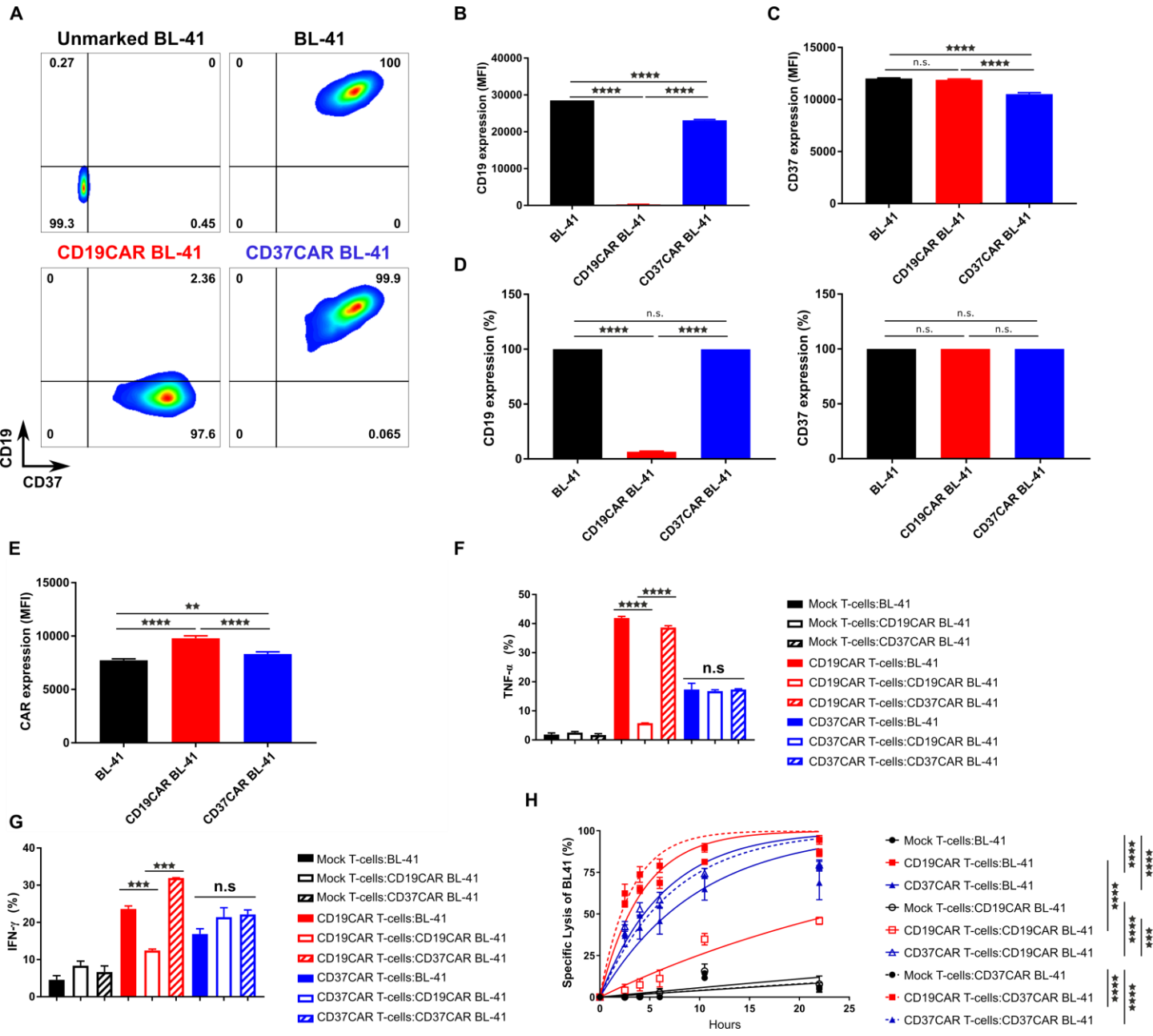


Supplemental Figure 1. Identification of tumor cells in NHL patient samples. Kappa and lambda expression was analyzed in B cells using flow cytometry. Plots show representative samples from FL, DLBCL, MCL, CLL and healthy donor tonsil. Tumor cells were identified by gating on tumor light chain, or light chain negative B cells in cases with light chain loss.

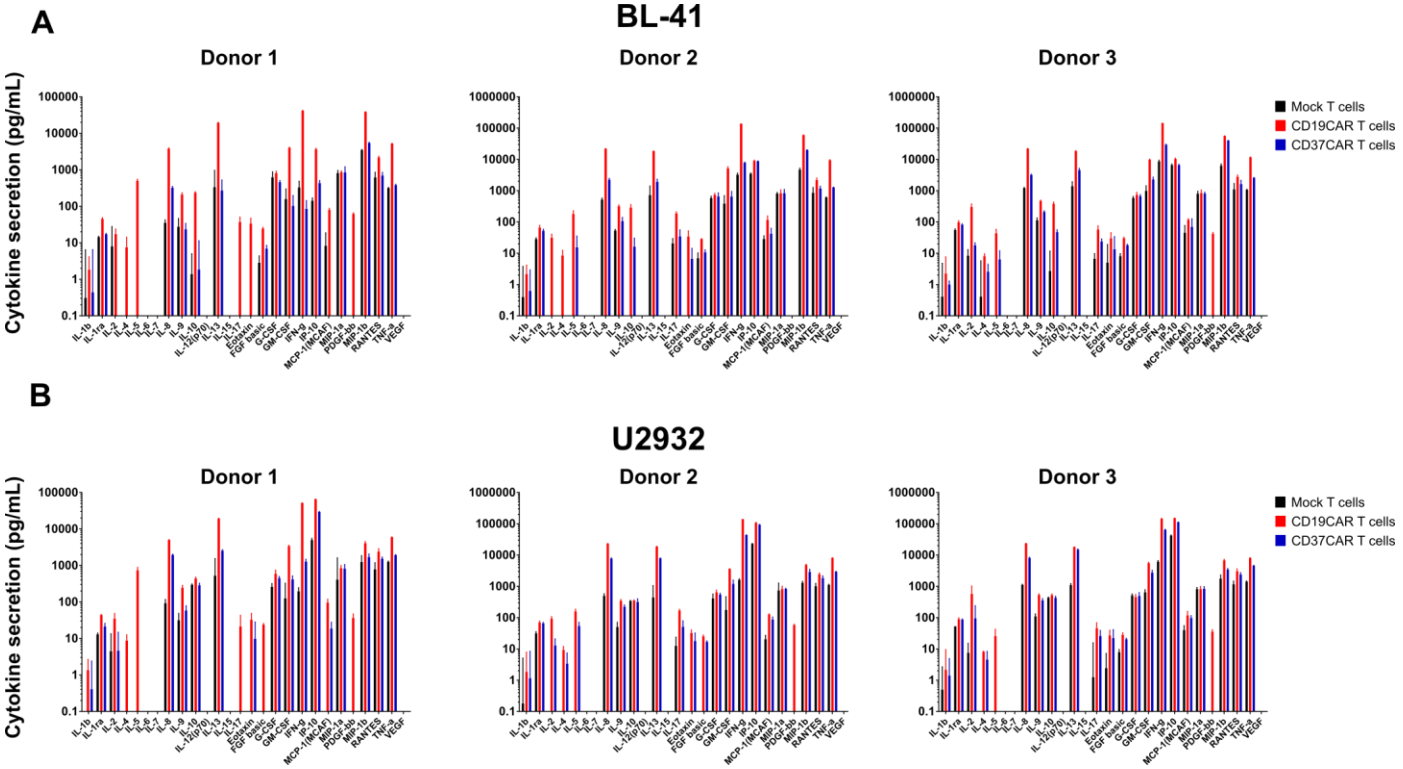


Supplemental Figure 2. CD19 and CD37 receptors expression on various tumor cell lines. (A) MFI of CD19 and CD37 receptors on various tumor cell lines as determined by flow cytometry. Data represent mean ± S.D. of duplicates. Representative data from one of two experiments are shown. (B) Flow cytometric analysis of CD19 and CD37 expression on various tumor cell lines.



Supplemental Figure 3. mRNA transfection of BL41 cells by CD37 CAR does not prevent recognition

(A) Flow cytometric analysis of CD19 and CD37 on the surface of BL-41 untreated or transfected with CD19CAR or CD37CAR. (B) CD19 expression (MFI) on the surface of BL-41 untreated or transfected with CD19CAR or CD37CAR. Data represent means ± S.D of quadruplicates. Representative data from one of two experiments are shown. (C) CD37 expression (MFI) on the surface of BL-41 untreated or transfected with CD19CAR or CD37CAR. Data represent means ± S.D of quadruplicates. Representative data from one of two experiments are shown. (D) Percentage of BL-41 cells expressing CD19 or CD37 upon CD19CAR or CD37CAR transfection. Data represent mean ± S.D. of quadruplicates. Representative data from one of two experiments are shown. (E) Expression of CD19CAR and CD37CAR on BL-41 cells measured by flow cytometry. Data represent mean ± S.D. of duplicates. Representative data from one of two experiments are shown. (F-G) Detection of intracellular cytokine production (TNF-α and IFN-γ) in CD19CAR or CD37CAR T cells after co-incubation with target cells BL-41 or CD19CAR BL-41 or CD37CAR BL-41 for 24h at an E:T ratio of 1:2. Representative data from one of two experiments are shown. Data represent means ± S.D of quadruplicates. (H) BLI-based measurement of cytotoxicity mediated by mock T-cells, CD19CAR T cells or CD37CAR T cells when co-cultured at an E:T ratio of 25:1 with target cells BL-41 or CD19CAR BL-41 or CD37CAR BL-41. Lysis was analyzed 2, 4, 6, 11 and 22h after co-culture. Data represent mean ± S.D. of quadruplicates. Representative data from one of two experiments are shown. Statistical differences were calculated using multi-variated bidirectional Student test. $P < 0.05$, $^{**}P < 0.01$, $^{***}P < 0.001$, $^{****}P<0.0001$.



Supplemental Figure 4. Bioplex of T-cells co-cultured with BL-41 cells. (A-B) Cytokine and chemokine secretion, as measured by bioplex assay of supernatants from T-cells from 3 healthy donors, transfected with CD19CAR or CD37CAR. T-cells were co cultured for 24h with BL-41 (A) or U2932 (B) at an E:T of 1:2. Data represent mean ± S.D. of triplicates. Representative data from one of two experiments are shown.