Supplementary materials

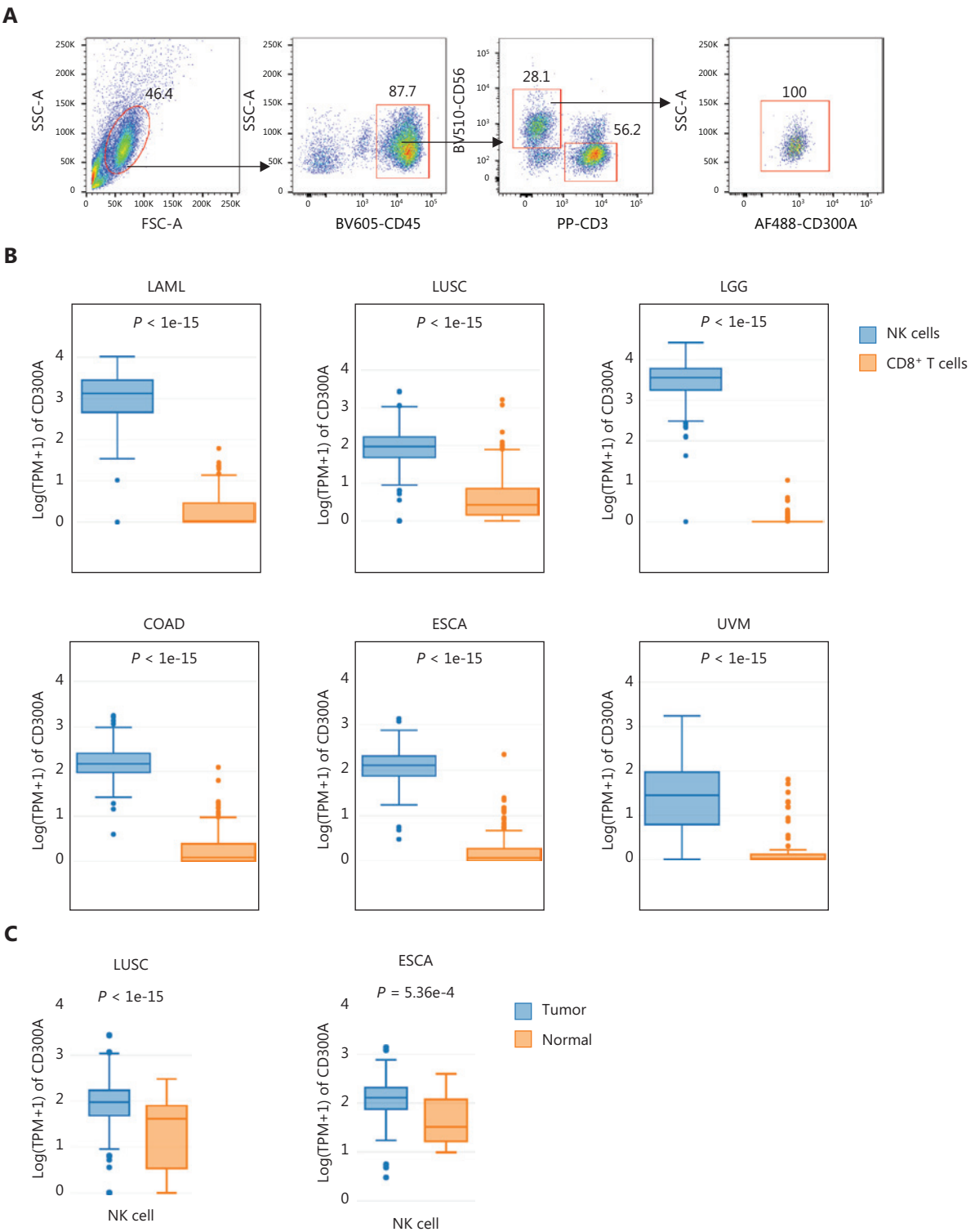

Figure S1 Human NK cells express CD300A. (A) Flow cytometry analysis of the expression of NK cell CD300A in human peripheral blood. The gating strategy and a representative flow cytometry graph are shown (n = 21). (B) Comparison of CD300A expression in NK cells and CD8

T cells in cancer patients with acute myeloid leukemia (LAML), lung squamous cell carcinoma (LUSC), brain low-grade glioma (LGG), colon adenocarcinoma (COAD), esophageal carcinoma (ESCA), or uveal melanoma (UVM). (C) Comparison of NK cell CD300A expression in tumor patients with lung squamous cell carcinoma (LUSC) or esophageal carcinoma (ESCA) and healthy controls. (B, C) Data are presented as the mean ± SEM. Statistical significance was determined using one-way ANOVA and *P*-values are shown.

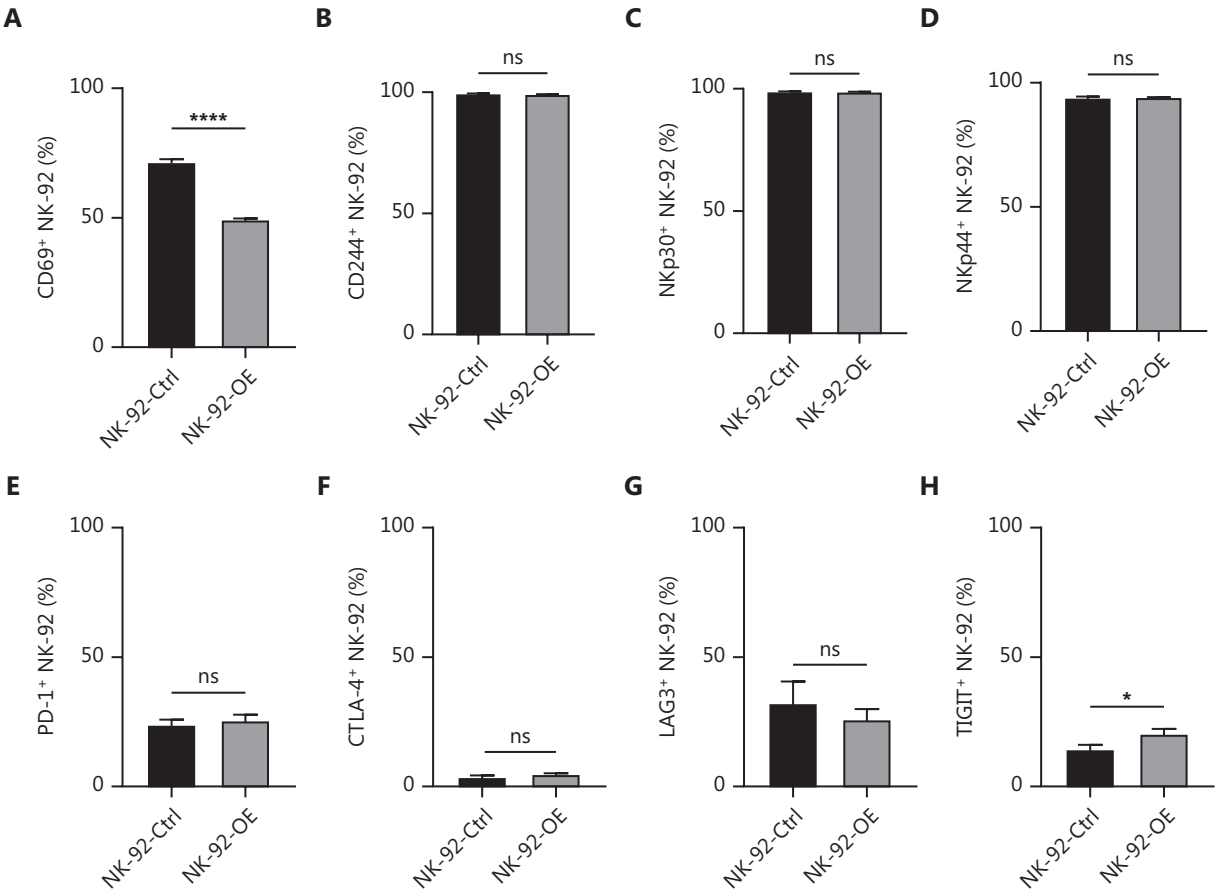

Figure S2 Overexpression of CD300A inhibits NK cell activity without affecting the expression of other receptors. Flow cytometry analysis assessing the differential expression of surface molecules between NK-92-Ctrl and NK-92-OE. Data are presented as the means ± SEM, $n = 3$ per group. Statistical significance was determined using an unpaired two-tailed Student's *t*-test. *$P < 0.05$; **$P < 0.01$; ***$P < 0.001$; ****$P < 0.0001$.

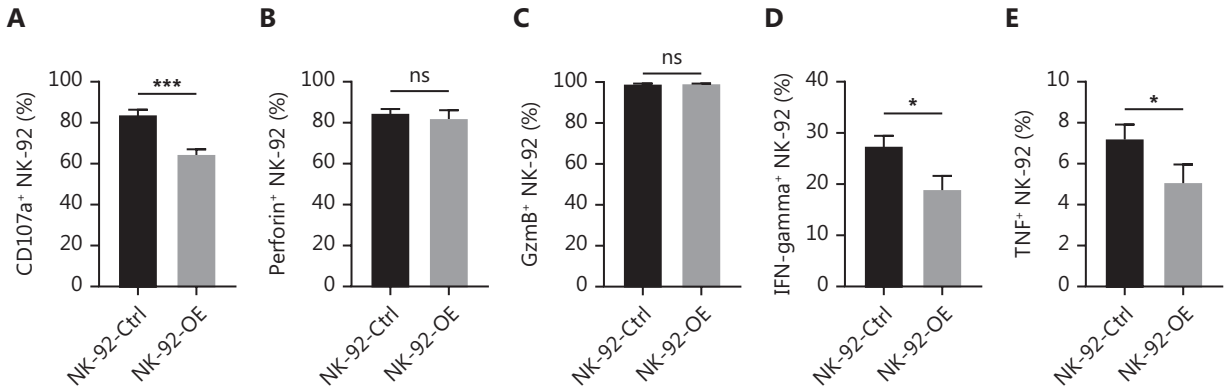

Figure S3 Enhanced PS-CD300A signals reduce NK cell degranulation and cytokine production capability. NK-92-Ctrl and NK-92-OE cells co-cultured with K562 cells at an E:T cell ratio of 5:1 for 4 h. The expression of lytic functional molecules or cytokines in NK-92-Ctrl and NK-92-OE were subsequently analyzed by flow cytometry. Data are presented as the mean ± SEM, n = 3 per group. Statistical significance was determined using an unpaired two-tailed Student's t-test. *P < 0.05; **P < 0.01; ***P < 0.001; ****P < 0.0001.

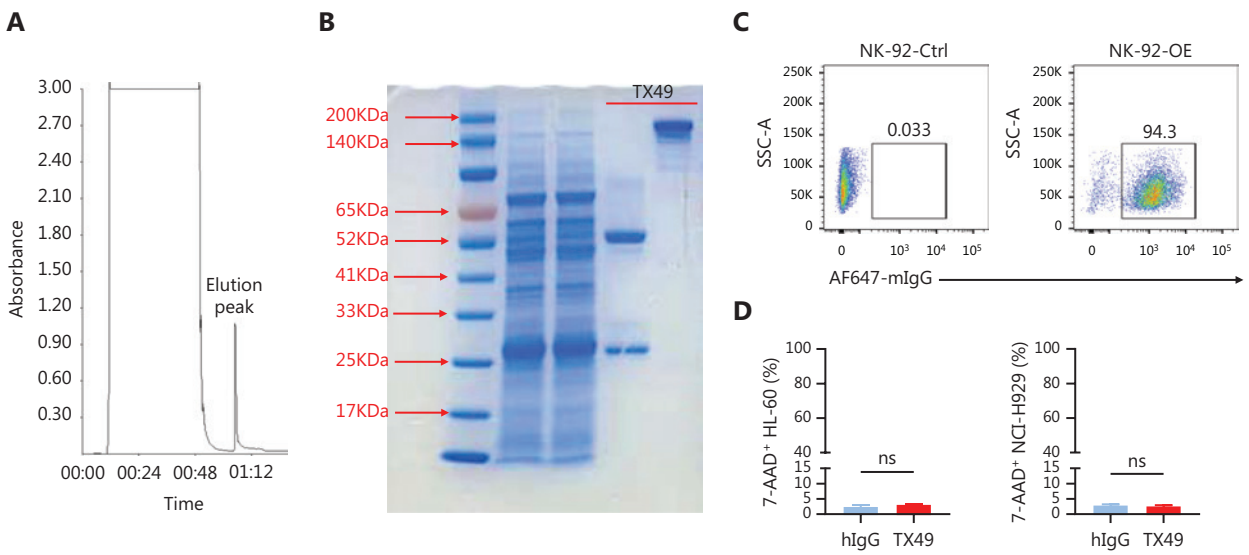

Figure S4 Purification of recombinant TX49. (A) Affinity chromatography profile of TX49. (B) Purity of TX49 as determined by SDS–PAGE. Restored and non-restored states of TX49 are shown. (C) Detection of the combining capacity of recombinant TX49 monoclonal antibody to CD300A-overexpressed or control NK-92 cells, as measured by flow cytometry. (D) Percentage of dead (7-AAD⁺) HL 60 cells and NCI-H292 cells incubated with TX49 for 4 h. Data are presented as the mean ± SEM, n = 3 per group. Statistical significance was determined using an unpaired two-tailed Student's t-test.