Figure S1. Effects of RUNX1 siRNA transfection on cell viability and effects of RUNX1 overexpression on TRAIL receptor expression. RUNX1 siRNA was transfected into K562 cells and 48 h after transfection, (A) cell counting and (B) cell cycle analysis were performed. Representative histograms are shown. (C) RUNX1 or CBFβ overexpression plasmid was transfected into K562 cells individually before their exogeneous expression was measured using reverse transcription-quantitative PCR. (D) RUNX1 and CBFβ expression plasmids were transfected into K562 cells as shown in Fig. 1D and E. After 48 h, total RNA was prepared and the expression of DR4 and DR5 was measured by reverse transcription-quantitative PCR. The data were normalized by actin expression. $^{**}P<0.01$. RUNX1, Runt-related transcription factor 1; siRNA or si, small interfering RNA; CBFβ, core binding factor β; DR, death receptor.

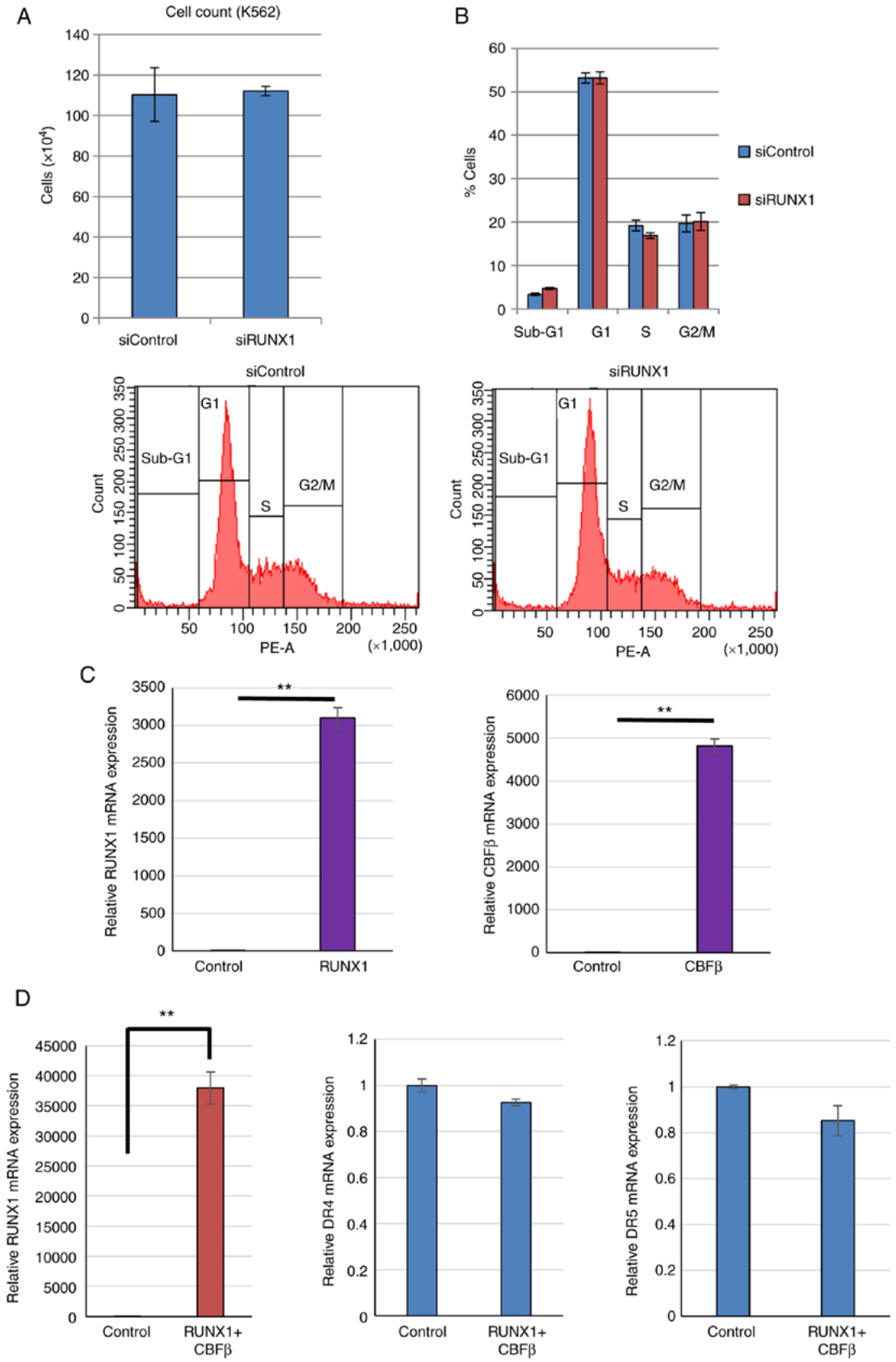

Figure S2. Recombinant TRAIL does not affect the growth of K562 leukemia cells. (A and B) K562 cells ($1x10^5$) were inoculated and treated with recombinant TRAIL for 3 days. (A) Cell count was performed and quantified. (B) Cell cycle profiling by flow cytometry analyzes showed that sub-G_1 was significantly but only slightly affected even after recombinant TRAIL was added. Representative histograms (Upper panels) and a bar graph (a lower panel) are presented. $^{**}P<0.01$. TRAIL, tumor necrosis factor-related apoptosis-inducing ligand.

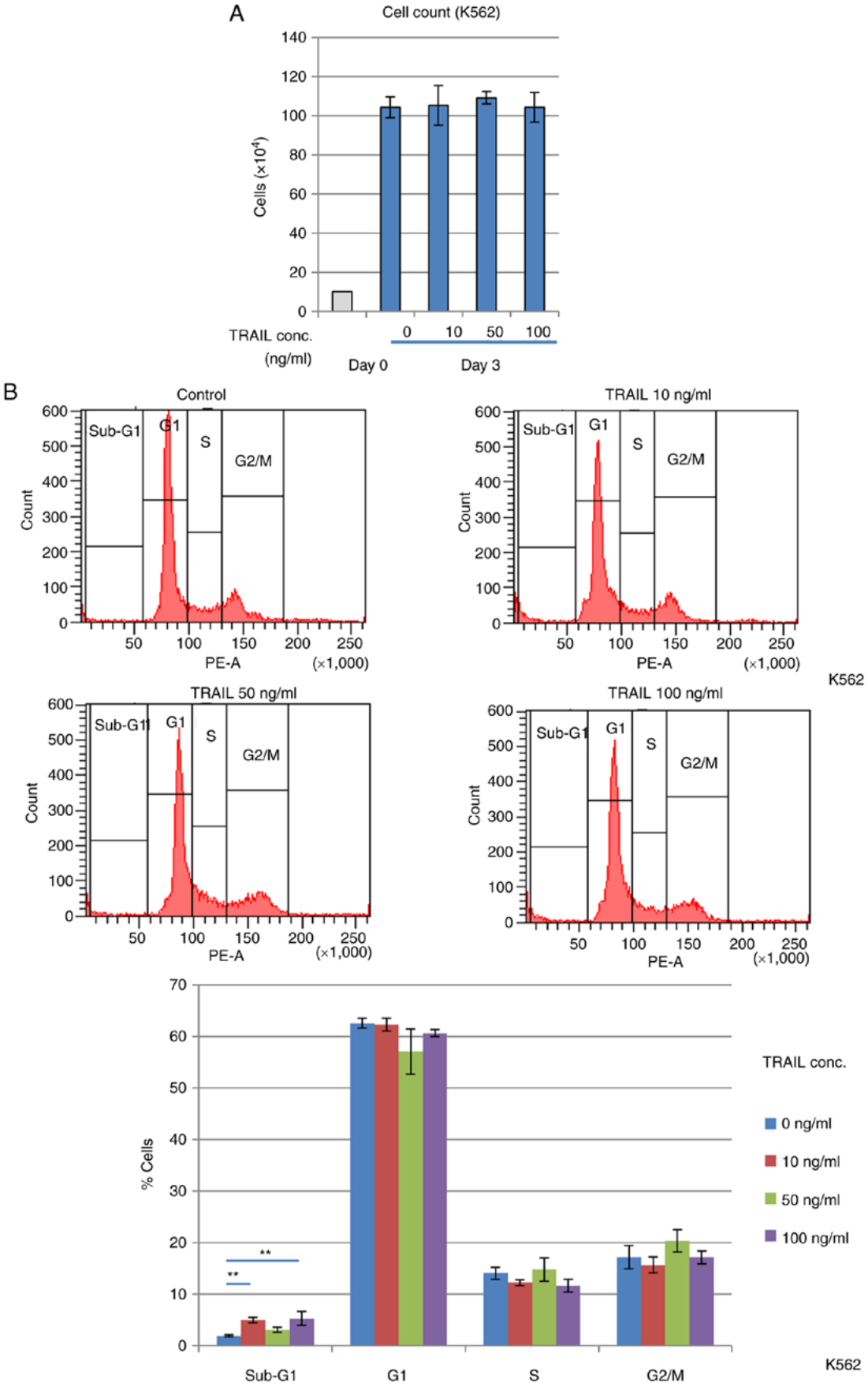

Figure S3. Recombinant TRAIL exerts little to no effects on the RUNX1-ETO-negative AML cell line KG-1. (A and B) KG-1 cells were treated with TRAIL for 3 days. (A) Cell counting and (B) cell cycle analysis by flow cytometry were performed. Representative histograms (upper panels) and corresponding quantification are presented. RUNX1, Runt-related transcription factor 1; TRAIL, tumor necrosis factor-related apoptosis-inducing ligand.

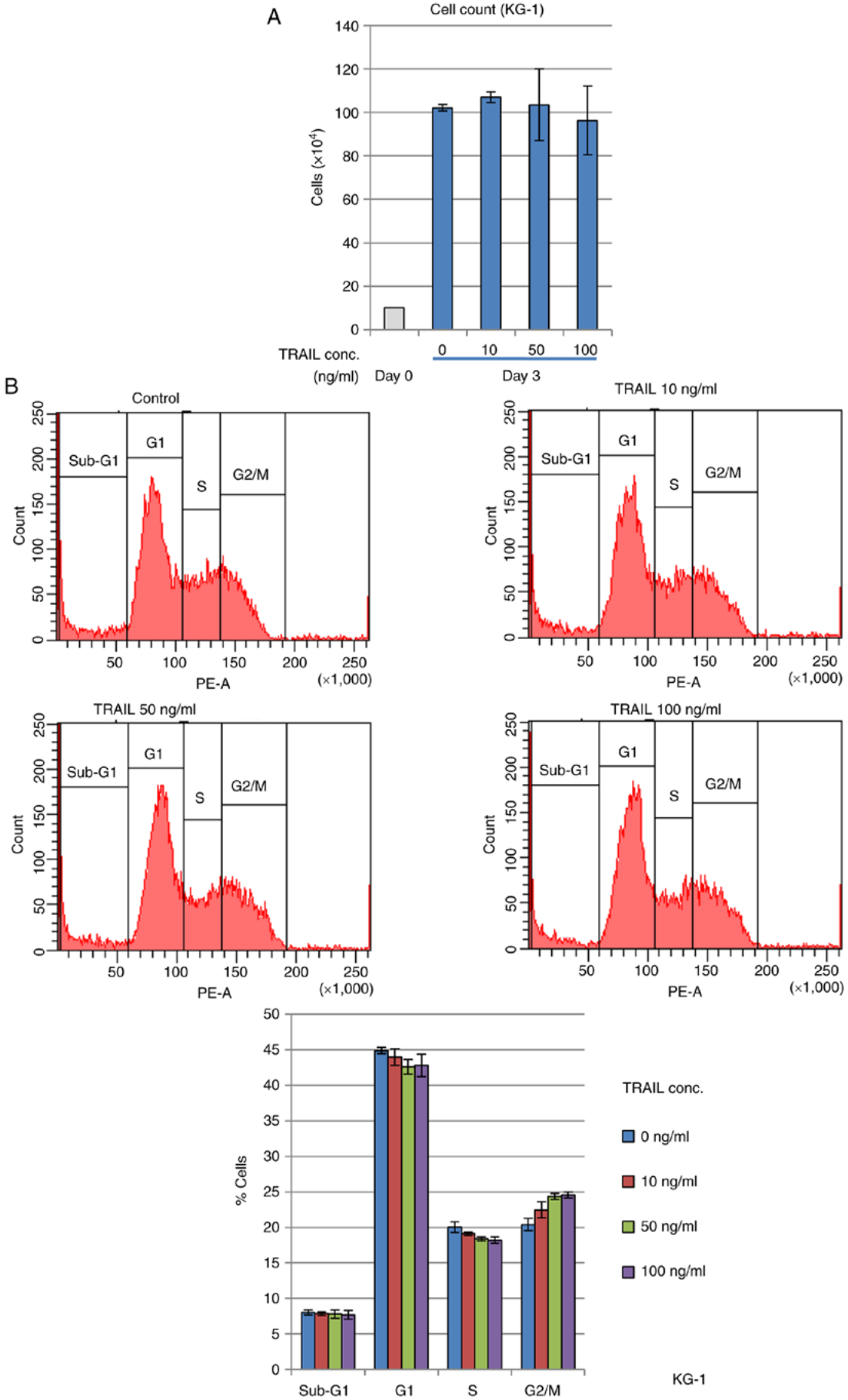

Figure S4. Recombinant TRAIL inhibits the growth of the RUNX-ETO-expressing SKNO-1 leukemia cells. (A and B) SKNO-1 cells ($1x10^5$) were treated with recombinant TRAIL with or without zVAD-fmk for 3 days. (A) Cell numbers were counted. (B) Cell cycle profiling was analyzed using flow cytometry. Sub-G_1 was increased by recombinant TRAIL treatment, which was prevented by co-treatment with zVAD. Representative histograms (upper panels) and a corresponding bar graph (a lower panel) are presented. $^{**}P<0.01$. RUNX1, Runt-related transcription factor 1; TRAIL, tumor necrosis factor-related apoptosis-inducing ligand.

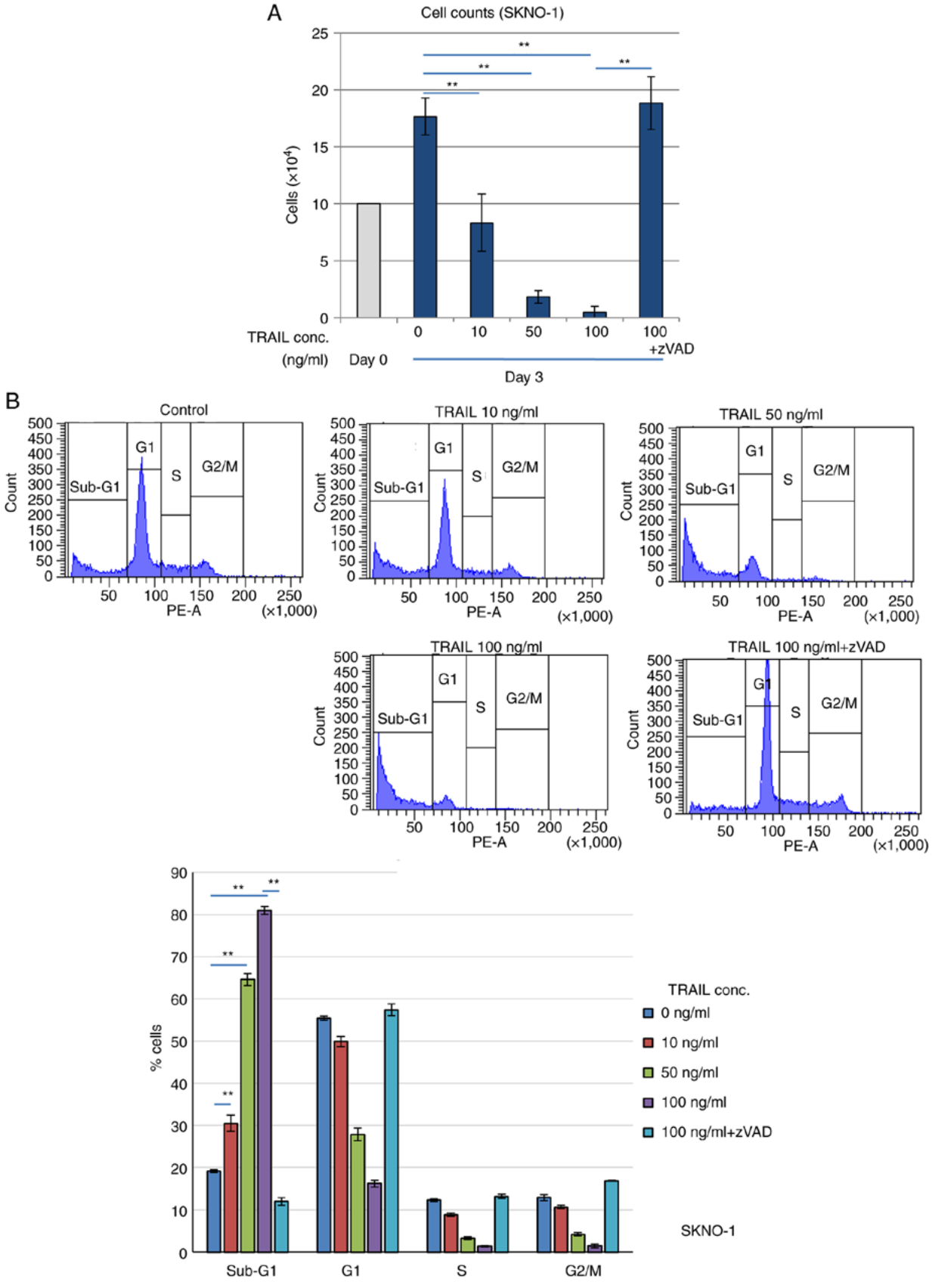

Figure S5. HDACi concentration-response for recombinant TRAIL. (A-D) Kasumi-1 cells were inoculated and treated with TRAIL combined with different concentrations of HDAC inhibitors NaB and VPA for 3 days. (A) Cell counting and (B) cell cycle analysis by flow cytometry after NaB treatment. (C) Cell counting and (D) cell cycle analysis by flow cytometry after VPA treatment. HDAC, histone deacetylase; TRAIL, tumor necrosis factor-related apoptosis-inducing ligand; VPA, valproic acid.