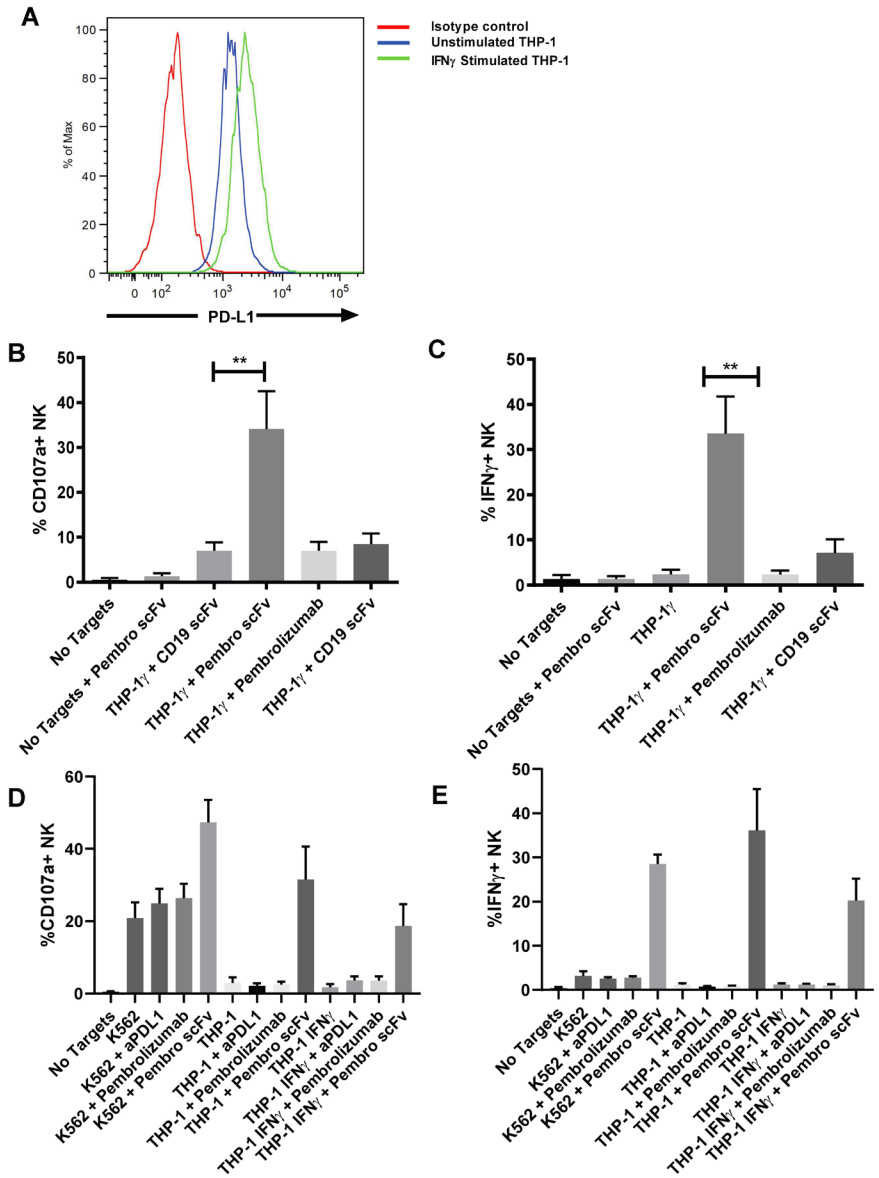
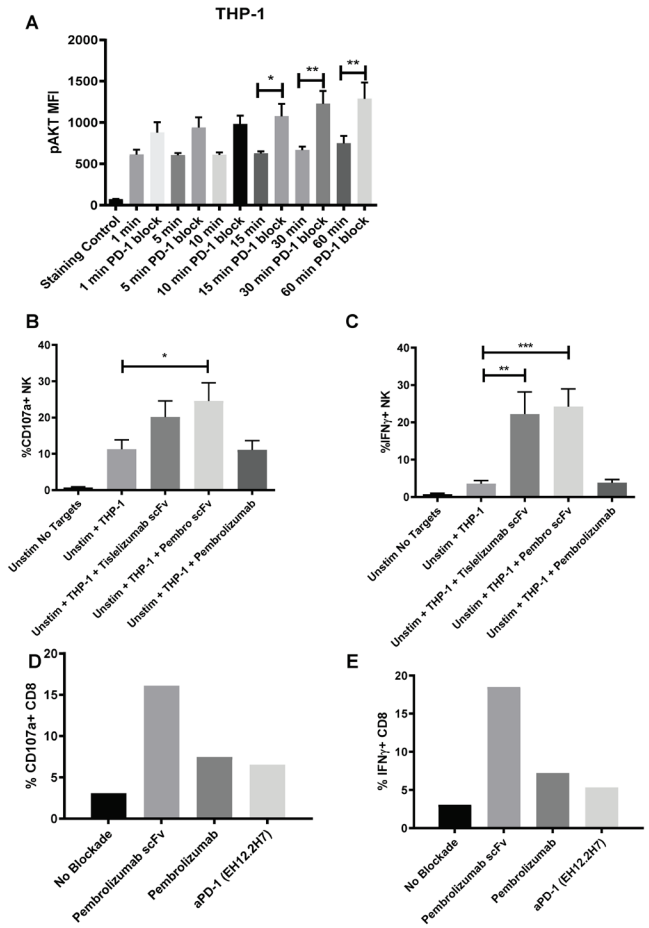
Supplemental Figure 1: Suppression of NK function by IFNγ upregulation of PD-L1 on THP-1 targets is overcome by PD-1 blockade but not PD-L1 blockade. THP-1 were left untreated or stimulated with 500 U/mL IFNγ overnight and stained for PD-L1 **(A)**. Stimulated THP-1 were co-cultured with purified NK cells with or without PD-1 blockade or an irrelevant scFv four 4hr and stained for CD107a **(B)** or IFNγ **(C).** NK cells were also cultured with K562 and THP-1 cells with PD-L1 blockade and evaluated for CD107a **(D)** and IFNγ **(E)**.

Supplemental Figure 1



Supplemental Figure 2: PD-1 blockade with Pembro-scFv results in an increase of pAKT in NK cells co-cultured with PD-L1 expressing targets and similar functional enhancements are seen with a similar PD-1 scFv as well as against stimulated CD8+ T-cells. NK cells with or without PD-1 blockade were co-cultured with THP-1 cells for up to 60 minutes **(A)**. At the end of each time point, cells were stained for NK cell markers and intracellular pAKT (n=3). PD-1 blockade was also evaluated with a scFv based on the clinical anti-PD-1, Tislelizumab, in comparison to Pembro-scFv with similar functional increses seen in CD107a **(B)** and IFNγ **(C)**. Purified T-cells were stimulated with pooled peptide (CEF) and IL-2 for 7 days and with and without PD-1 blockade and assessed for CD107a (**D**) and IFNγ (**E**) (n=7).; * p<0.05 ** p<0.01 *** p<0.001.

Supplemental Figure 2



Supplemental Figure 3: Digestion and Fc deglycosylation have no effect on pembrolizumab blockade of NK expressed PD-1. pembrolizumab was treated with EndoS to deglycosylate the Fc or digested with papain to generate Fab fragements. Digestion of pembrolizumab was confirmed by western blot **(A)**. Antibody preparations were tested for antagonistic function against K562 **(B-D)** or THP-1 **(C-E)**.