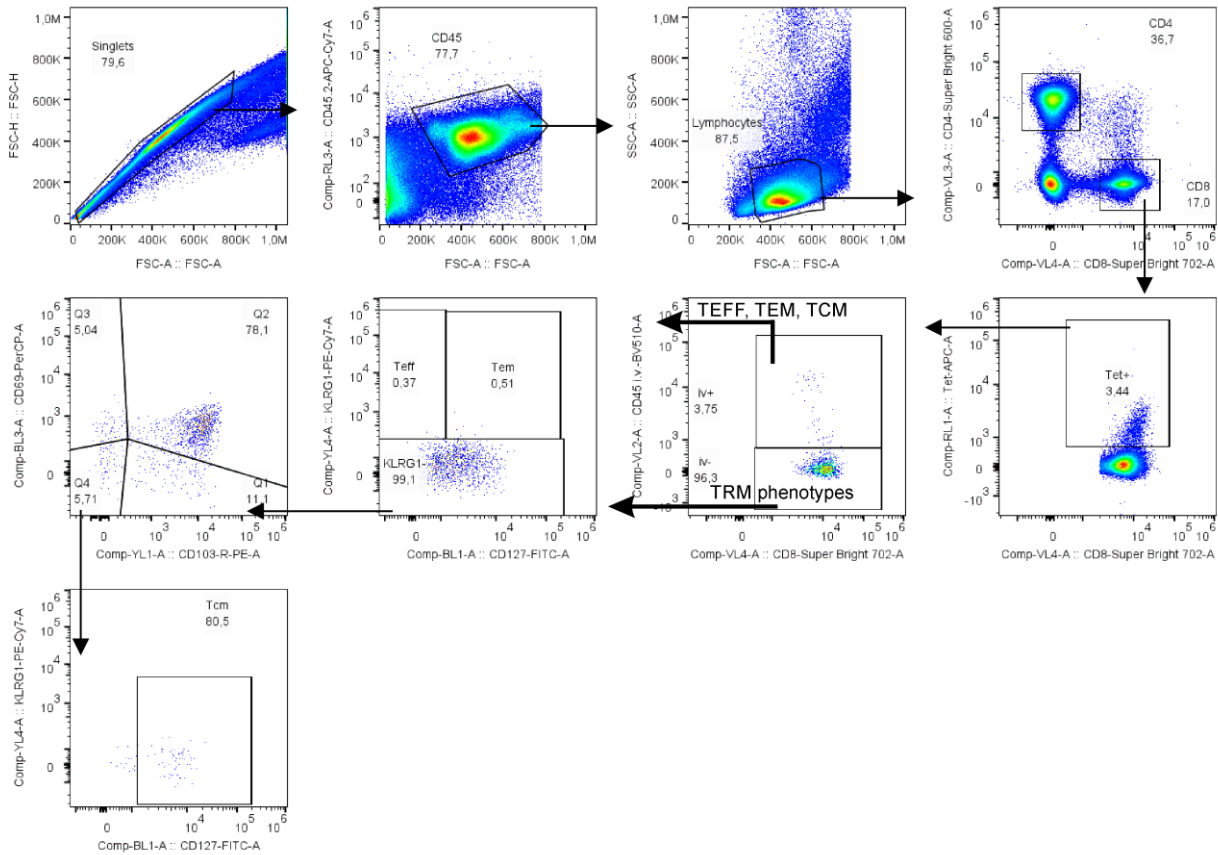
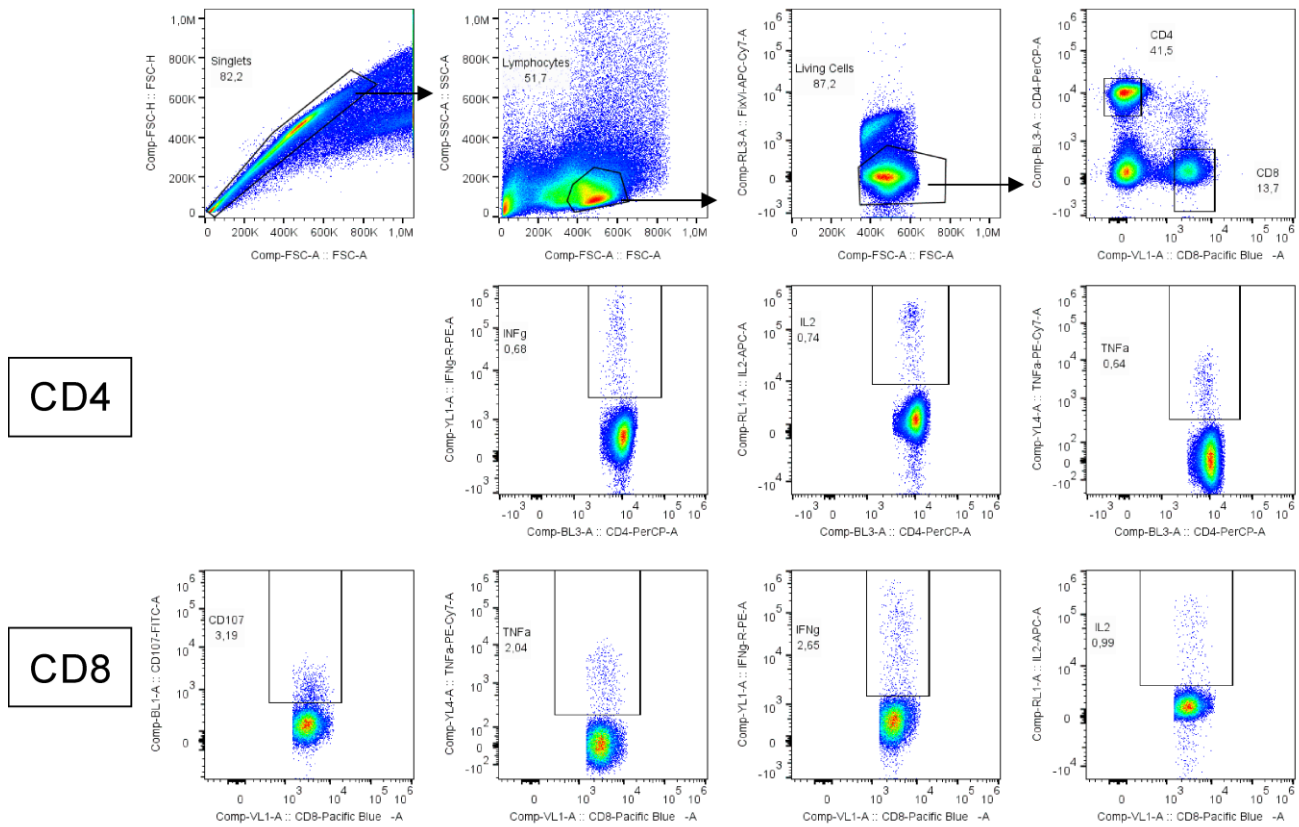


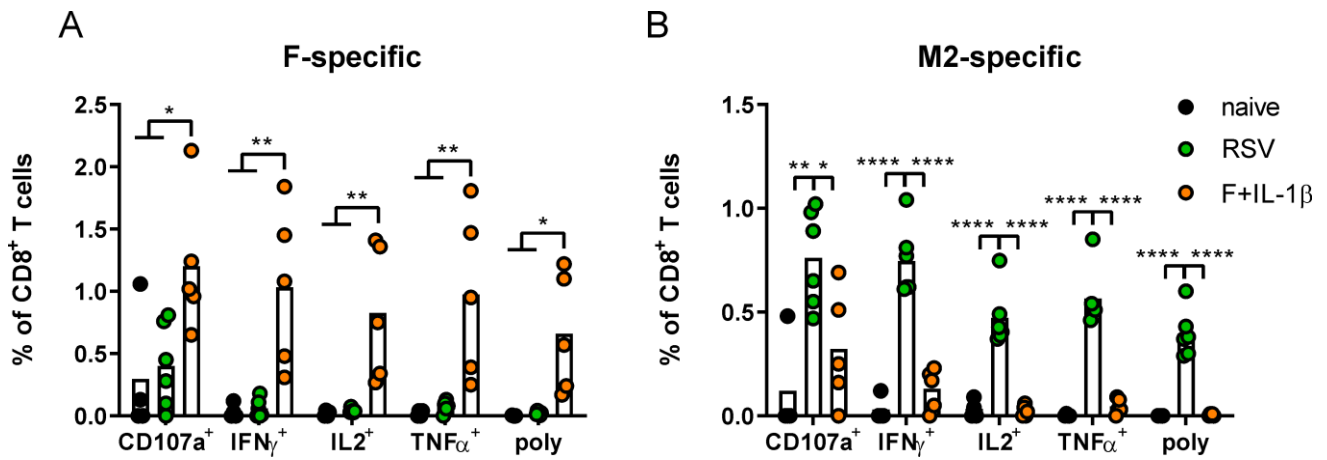
**Supplemental Fig 1: Bioactivity of genetic adjuvants.** The activation of NFκB- (A), ISRE- (B), IRF3- (C) and IFN-β- (D) pathways were assessed by in vitro luciferase reporter assays. To this end, HEK 293T cells were transfected with respective luciferase reporter plasmid followed by a transduction with Ad-empty, Ad-IPS-1 or Ad-IL-1β. Transfected cells without transduction were used as negative control (no Ad). Data represent medians of technical triplicates with individual data points. Data were analyzed by one-way ANOVA followed by Tukey's post test (values were log-transformed before analysis). \* $p < 0.05$ , \*\* $p < 0.005$ , \*\*\* $p < 0.0005$ , \*\*\*\* $p < 0.0001$ . Relative light units per second, RLU/s.



**Supplemental Figure 2: Gating strategy for memory T cell phenotypes.** Exemplary gating strategy of a lung sample from an Ad-F+Ad-IL-1 $\beta$ -immunized mouse. T<sub>RM</sub> phenotypes are determined within the CD45-BV510 (intravascular staining) negative compartment, while circulatory T<sub>EFF</sub>, T<sub>EM</sub>, and T<sub>CM</sub> are identified within the iv-positive compartment. T<sub>EFF</sub>, effector T cells; T<sub>EM</sub>, effector memory T cells; T<sub>CM</sub>, central memory T cells; T<sub>RM</sub>, tissue-resident memory T cells



**Supplemental Figure 3: Gating strategy for the analysis of functional T cell responses.** Exemplary gating strategy of a lung sample from an Ad-F+Ad-IL-1 $\beta$ -immunized mouse. The degranulation marker CD107a was only assessed in CD8<sup>+</sup> T cells.



**Supplemental Figure 4: Spleen T cell functionality induced by mucosal vaccination and a primary RSV infection.** Spleen lymphocytes were restimulated with MHC-class I peptides derived from the F (A) and the M2 protein (B) and the functionality of CD8<sup>+</sup> T cells was detected via extracellular staining for CD107a and intracellular cytokine staining (poly; for CD8<sup>+</sup>: CD107a<sup>+</sup>IFN<sub>γ</sub><sup>+</sup>IL-2<sup>+</sup>TNF<sub>α</sub><sup>+</sup>; gating strategy in Supplemental Figure 3). Bars represent group means overlaid with individual data points. n=4-6. Data were analyzed by one-way ANOVA followed by Tukey's post Test. \* $p < 0.05$ , \*\*  $p < 0.005$ , \*\*\*  $p < 0.0005$ , \*\*\*\*  $p < 0.0001$ .