Supplementary Material

Supplementary Figure 1

Rhinovirus infection induced type I and III IFN expression. BALB/c mice were inoculated i.n. with $5x10^6$ $TCID_{50}$ of RV-1B or UV-inactivated RV-1B. (a) Levels of IFN-α protein in BAL fluid were measured by ELISA. (b) Levels of IFN-β mRNA in BAL cells and protein in BAL fluid were measured by qPCR and ELISA respectively. (c) Levels of IFN-λ mRNA in lung tissue and protein in BAL fluid were measured by qPCR and ELISAs respectively. All data are representative of three independent experiments. Data was analysed by two-way ANOVA, ***p<0.001, **p<0.01 and *p<0.05 as indicated, all data are expressed as mean ± SEM.

Supplementary Figure 2

Rhinovirus induced NK cell responses were dependent on live replicating virus. BALB/c mice were inoculated i.n. with $5x10^6$ $TCID_{50}$ of RV-1B, UV-inactivated RV-1B or PBS (mock/0 hours). (a-d) Flow cytometry was used to determine the time course of total numbers of NK cells ($CD3^-$ $NKp46^+$) (a), $CD69^+$ NK cells (b), IFN-γ^+ NK cells (c) and $GranzymeB^+$ NK cells (d) in the BAL and left lung lobe, at the indicated times post infection. All data are representative of three independent experiments. Data was analysed by two-way ANOVA, ***p<0.001, **p<0.01 and *p<0.05 as indicated, all data are expressed as mean ± SEM.

Supplementary Figure 3

Intranasal administration of M96 IL-15 neutralising antibody affects NK cell but not T cell populations systemically. BALB/c mice were treated i.n. with M96 antibody, isotype control antibody or PBS. (a) Total number of leukocytes was determined in the spleen and lung. (b-d) Flow cytometry was used to determine the percentage of $CD4^+$ T cells ($CD3^+$ $CD4^+$) (b) $CD8^+$ T cells ($CD3^+$ $CD8^+$) (c) and NK cells ($CD3^-$ $NKp46^+$) (d) in the spleen and lung, within the lymphocyte gate, at the indicated times points post treatment. All data are representative of two independent experiments. Data was analysed by

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Supplementary Figure 4

IL-15Rα$^{-/-}$ mice had a severe deficiency of NK cells and did not mount NK cell responses to rhinovirus infection. IL-15Rα$^{-/-}$ and strain matched control wt mice were inoculated i.n. with 5x10^6 $TCID_{50}$ of RV-1B or PBS (mock/0 hours). (a) Representative flow cytometry plots of BAL and lung NK cells (CD3$^-$ NKp46$^+$) in naïve IL-15Rα$^{-/-}$ and wt mice. Numbers indicated on the plots represent the % of events falling within the NK cell gate, from the parent lymphocyte gate. (b) Flow cytometry was used to determine the time course of total numbers of BAL NK cells (CD3$^-$ NKp46$^+$), CD69$^+$ NK cells, IFN-γ$^+$ NK cells and GranzymeB$^+$ NK cells. All data are representative of three independent experiments. Data was analysed by two-way ANOVA, ***p<0.001, **p<0.01 and *p<0.05 as indicated, all data are expressed as mean ± SEM.

Supplementary Figure 5

IFNAR1$^{-/-}$ mice had deficient NK cell responses to rhinovirus infection. IFNAR1$^{-/-}$ and strain matched control wt mice were inoculated i.n. with 5x10^6 $TCID_{50}$ of RV-1B. (a-d) Flow cytometry was used to determine the total numbers of NK cells (CD3$^-$ NKp46$^+$) (a), CD69$^+$ NK cells (b), IFN-γ$^+$ NK cells (c) and GranzymeB$^+$ NK cells (d) in the BAL and left lung lobe, at the indicated times post infection. All data are representative of three independent experiments. Data was analysed by two-way ANOVA, ***p<0.001, **p<0.01 and *p<0.05 as indicated, all data are expressed as mean ± SEM.

~~(a-d) Representative flow cytometry plots of BAL NK cells (CD3$^-$ NKp46$^+$) (**A**), CD69$^+$ NK cells (**B**), Granzyme B+ NK cells (**C**) and IFN-γ$^+$ NK cells (**D**) at 48 hours post infection. Numbers indicated on the plots represent the % of events falling within the indicated gate. All data are representative of three independent experiments.~~

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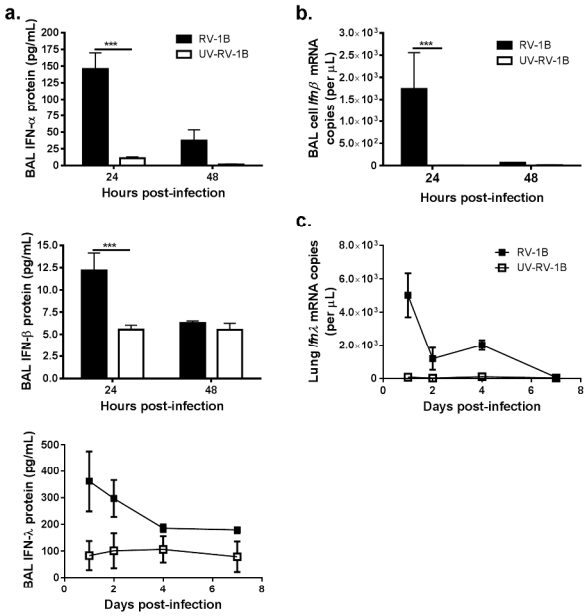
Supplementary Figure 1



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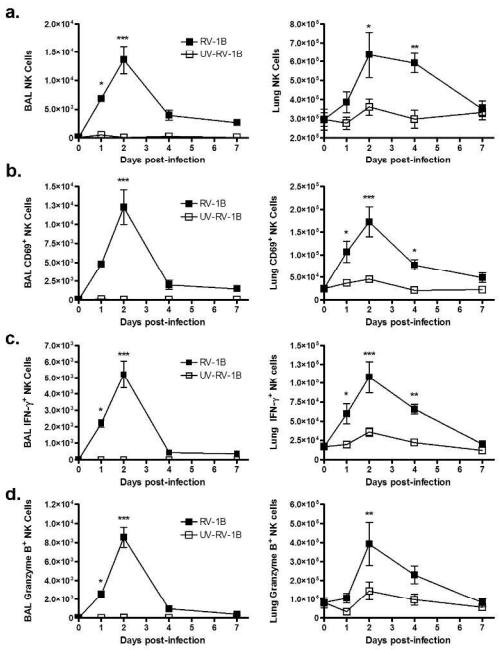
Supplementary Figure 2



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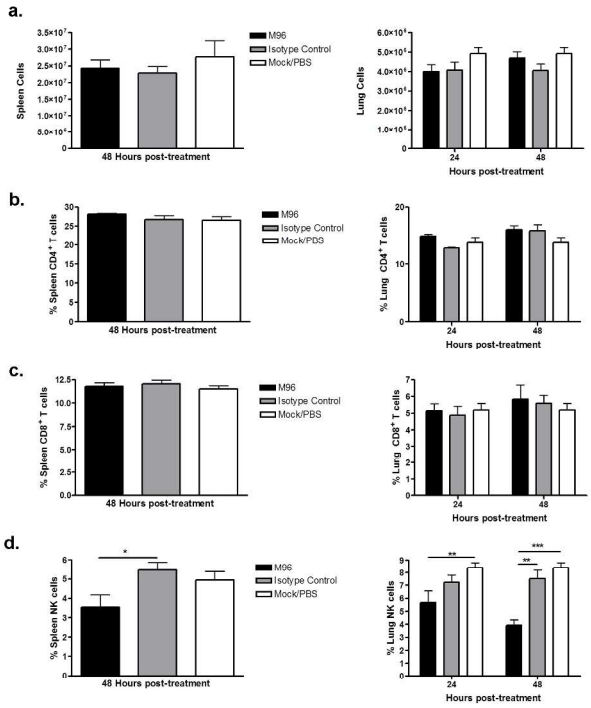

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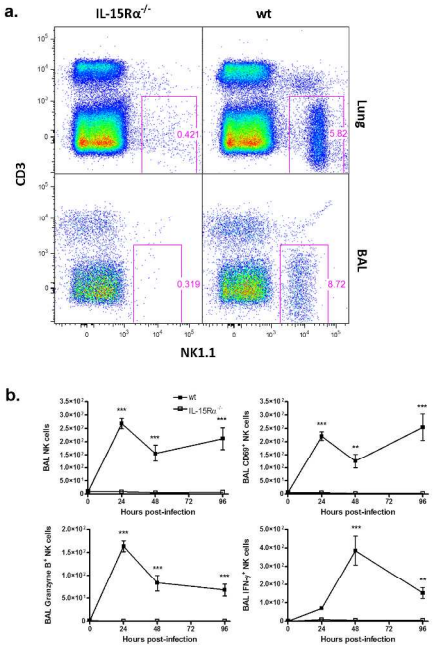

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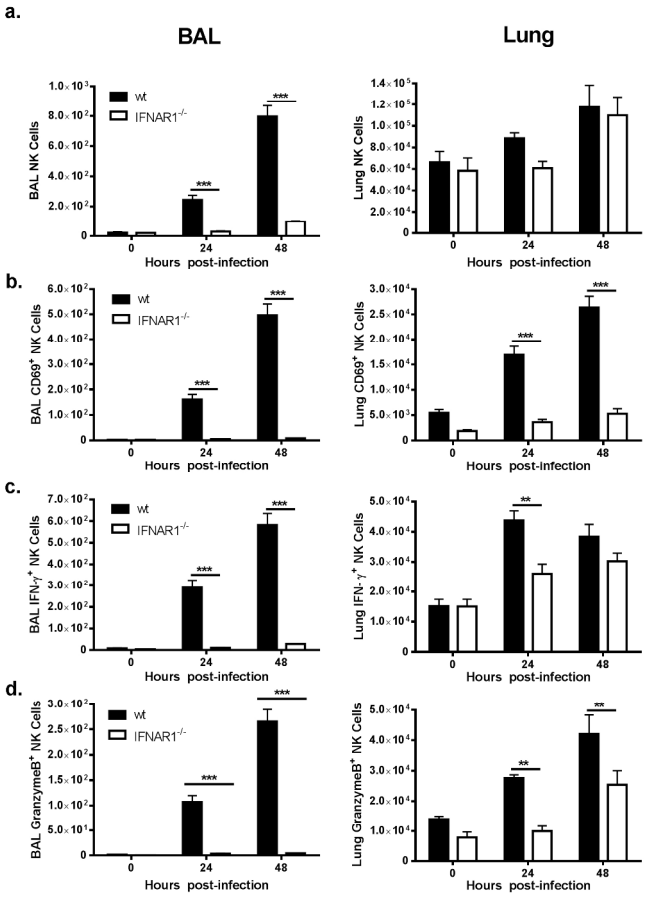

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