Supplementary Figure Legends

Supplementary Fig. S1. NK cell numbers in the lungs and lymph nodes. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. At various time points post inoculation **(Fig S1A)** lung cells, or **(Fig S1B)** lymph node cells were isolated and stained for NK cell surface markers. The percentage of lung cells with the phenotype $DX5^{+}NKp46^{+}CD3^{-}$ are graphed. Data represent mean ± SEM, ***p<0.001 compared to WT control, #p<0.05 compared to day 0.

Supplementary Fig. S2. NK cells producing IFN-γ in the lungs. Mice were inoculated with RSV on day 0. At day 4, lung cells were isolated, cultured with Brefeldin A and stimulated with or without **(Fig S2A)** IL-12 (20 ng/ml) for 5 hours and stained for NK cell markers $DX5^{+}NKp46^{+}CD3^{-}$, or stimulated with or without **(Fig S2B)** PMA (0.1 μg/ml) and ionomycin (1 μg/ml) for 5 hours and stained for the T cell marker $CD3^{+}$. IFN-γ was then detected by ICS and IFN-γ^{+} cells gated based on isotype controls. The percentage of NK cells (gated on $DX5^{+}NKp46^{+}CD3^{-}$) or T cells (gated on $CD3^{+}$) producing IFN-γ is depicted in the boxes for unstimulated and stimulated cells from both naïve and RSV-infected mice. Data are from one experiment representative of 3 or 4 independent experiments.

Supplementary Fig. S3. Micrographs of airway mucus secreting cells and mucus plugging. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. Mucus secreting cells were visualised in lung sections using the PAS stain.

Supplementary Fig. S4. RSV viral titre during late stages of infection. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. Whole lung tissue was isolated on day 9 and used to determine the viral titre by quantitative PCR. The number of copies of RSV N gene (viral genome) was compared to the housekeeping gene HPRT.

Supplementary Fig. S5. Mast cell in lung tissue. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. The number of mast cells in the airway parenchyma per 100μm basement membrane (BM) were counted on day 9 using CAE stain.

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Supplementary Fig. S6. IL-4 and IL-5 protein produced by lymph node cells in culture. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. Some mice were treated with recombinant murine (rm) IFN-γ on days 1, 2, and 3. Lymph node cells were isolated on day 4 and cultured unstimulated for 3 days. Data represent mean ± SEM, *p<0.05 compared to WT control, ##p<0.01 compared to NK-depleted.

Supplementary Fig. S7. RSV viral titre early during T cell differentiation. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. Whole lung tissue was isolated on day 4 and used to determine the viral titre by quantitative PCR. The number of copies of RSV N gene (viral genome) was compared to the housekeeping gene HPRT.

Supplementary Fig. S8. Presence of basophils in the lymph nodes. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV or influenza on day 0, and 4 days later lymph node cells were isolated and stained for basophil surface markers. The percentage of lymph node cells with the phenotype FcRεI^{+}CD49b^{+}c-kit^{-}CCR3^{-} Gr-1^{-}CD3^{-} are graphed.

Supplementary Fig. S9. Mice were treated with anti-ASIALO GM1 (NK-depleted), or isotype (WT control), and then inoculated with RSV on day 0. On day 4, lung cells, or lymph node cells were isolated and analysed by flow cytometry for DC surface markers CD11c, CD11b and MHC class II, as well as the notch ligand Jagged1. The numbers of cells expressing **(Fig S9A)** CD11c^{+} CD11b^{+}MHCclassII^{+}, and **(Fig S9B)** CD11c^{+} CD11b^{+}MHCclassII^{+} Jagged1^{+} are graphed. Data represent mean ± SEM, **p<0.01 compared to WT control.

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Fig S1

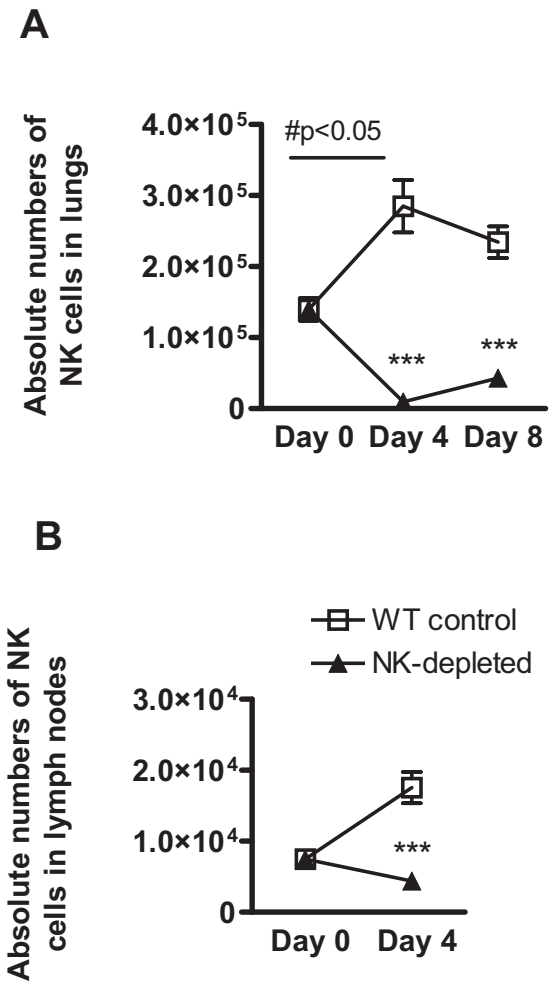

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Fig S2

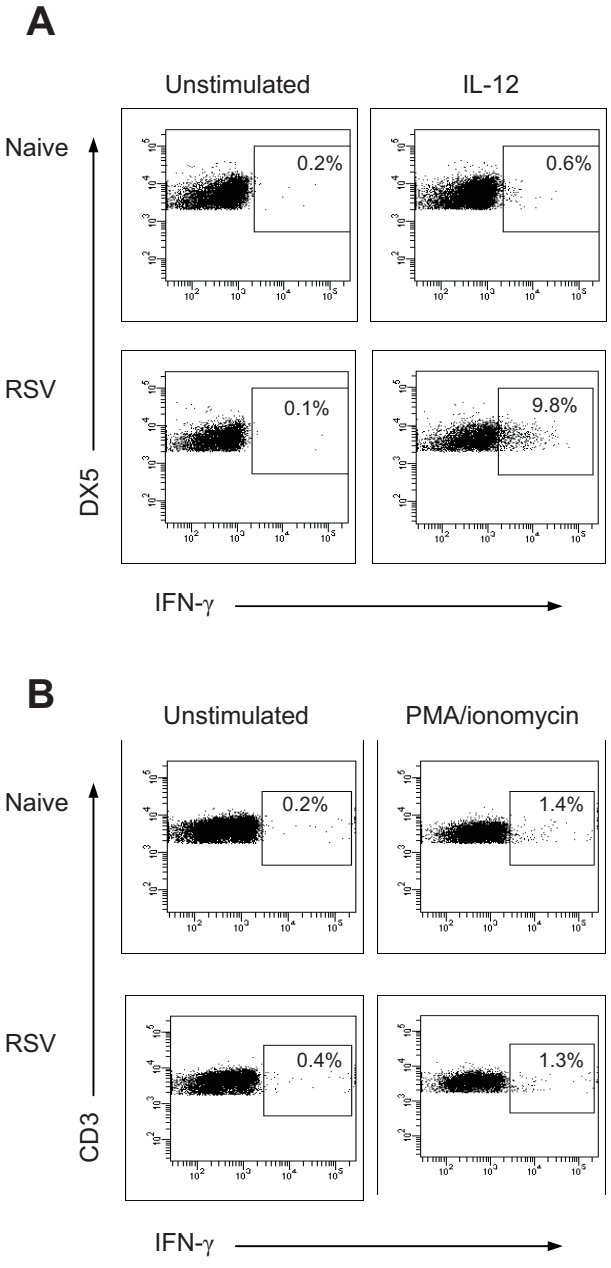

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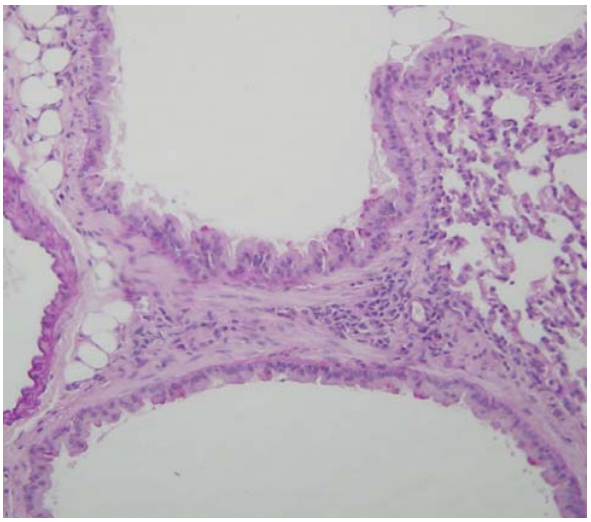
Fig S3

WT control



NK-depleted

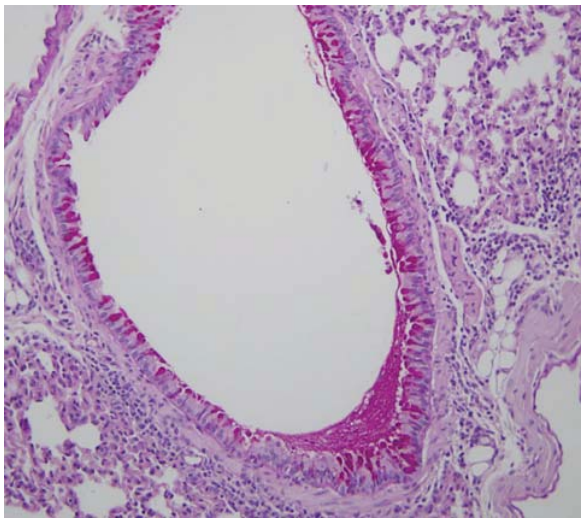


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Fig S4

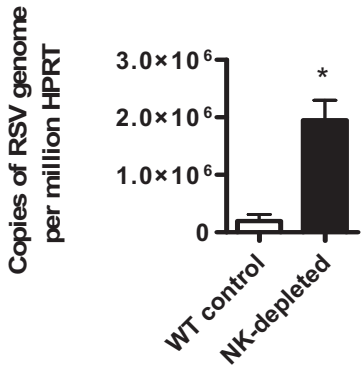

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Fig S5

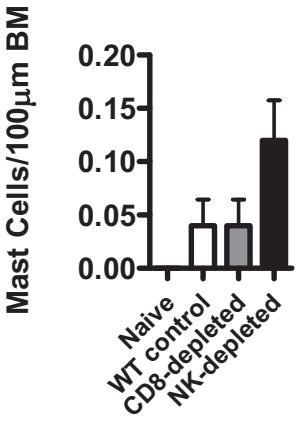

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Fig S6

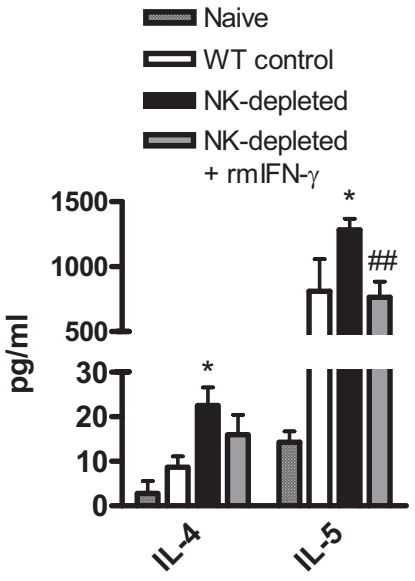

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Fig S7

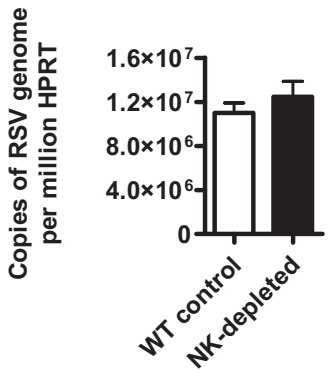

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Fig S8

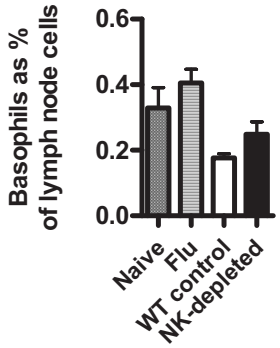

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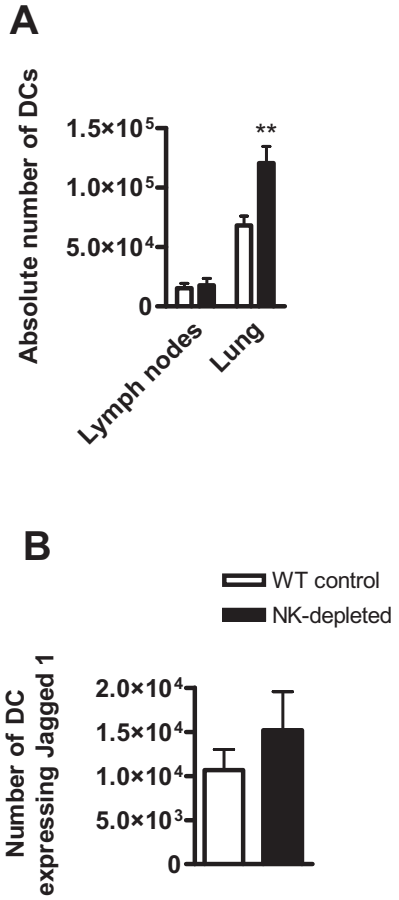
Fig S9



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