Table S1. Flow cytometry antibodies used in the study

Target	Clone	Supplier	Concentration	Fluorochrome
CD45	30-F11	Biolegend	1:400	PerCP-Cy5.5
SiglecF	E50-2440	Biolegend	1:200	PE
CD11c	N418	Biolegend	1:200	BV605
CD3ε	145-2C11	Biolegend	1:400	FITC
CD11b	M1/70	Biolegend	1:400	FITC
CD11c	N418	Biolegend	1:400	FITC
CD19	6D5	Biolegend	1:400	FITC
CD49b	DX5	Biolegend	1:400	FITC
F4/80	BM8	Biolegend	1:400	FITC
FcεRI	MAR-1	Biolegend	1:400	FITC
ST2	DIH9	Biolegend	1:200	BV421
c-Kit	2B8	Biolegend	1:200	PE-Cy7
Sca-1	D7	Biolegend	1:200	APC-Cy7
Thy1.2	53-2.1	Biolegend	1:400	BV605
GATA3	16E10A23	Biolegend	1:20	Alexa Fluor 647
IL-5	TRFK5	eBioscience	1:100	PE
IL-13	eBio13A	eBioscience	1:100	eFluor 660
F4/80	BM8	Biolegend	1:200	PE-Cy7
ST2	DIH9	Biolegend	1:200	PE
ICOS	c398.4A	Biolegend	1:200	PE-Cy7
EpCAM	G8.8	Biolegend	1:200	APC
CD11c	N418	Biolegend	1:200	APC-Cy7
CD31	390	Biolegend	1:200	BV605
IL-33	396118	BD	1:10	PE

Lineage-negative cells were defined as: $CD3\varepsilon^{-}CD11b^{-}CD11c^{-}CD19^{-}CD49b^{-}F4/80^{-}Fc\varepsilon RI^{-}$

Table S2. qPCR primers used in the study

Target	Sequence
Gapdh forward	5’-AGGTCGGTGTGAACGGATTTG-3’
Gapdh reverse	5’-TGTAGACCATGTAGTTGAGGTCA-3’
Gob5 forward	5’-ACTAAGGTGGCCTACCTCCAA-3’
Gob5 reverse	5’-GGAGGTGACAGTCAAGGTGAGA-3'
Muc5ac forward	5’- CCATGCAGAGTCCTCAGAACAA-3’
Muc5ac reverse	5’- TTACTGGAAAGGCCCAAGC-3’
Il5 forward	5’-CTCTGTTGACAAGCAATGAGACG-3’
Il5 reverse	5’-TCTTCAGTATGTCTAGCCCCTG-3’
Il6 forward	5’- CAAAGCCAGATCAGA-3’
Il6 reverse	5’- GATGGTCTTGGTCCTTAGCC-3’
Il13 forward	5’-CCTGGCTCTTGCTTGCCTT-3’
Il13 reverse	5’-GGTCTTGTGTGATGTTGCTCA-3’
Il33 forward	5’-ATTTCCCCGGCAAAGTTCAG-3’
Il33 reverse	5’- AACGGAGTCTCATGCAGTAG A-3’
Tslp forward	5’-AGGCTACCCTGAAACTGAG-3’
Tslp reverse	5’-GGAGATTGCATGAAGGAATACC-3'
F (RSV) forward	5’-AATGATATGCCTATAACAAATGATCAGAA -3’
F (RSV) reverse	5’- TGGACATGATAGAGTAACTTTGCTGTCT-3’

Figure S1. IL-33 triggers IL-5 and IL-13 production by ILC2

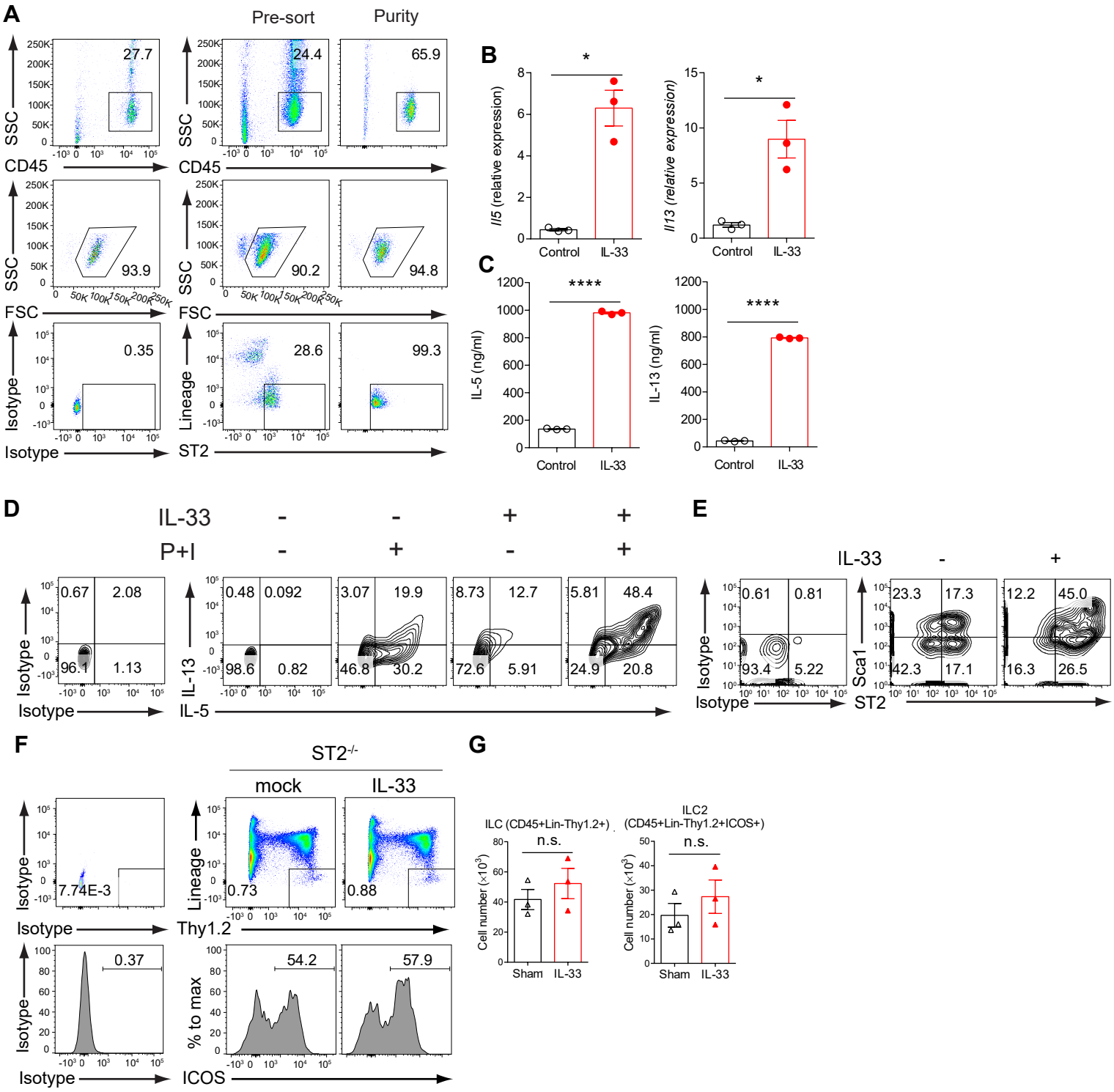


Figure S2. ILC2 plays major roles in IL-13 expression under RSV infection or IL-33 treatment.

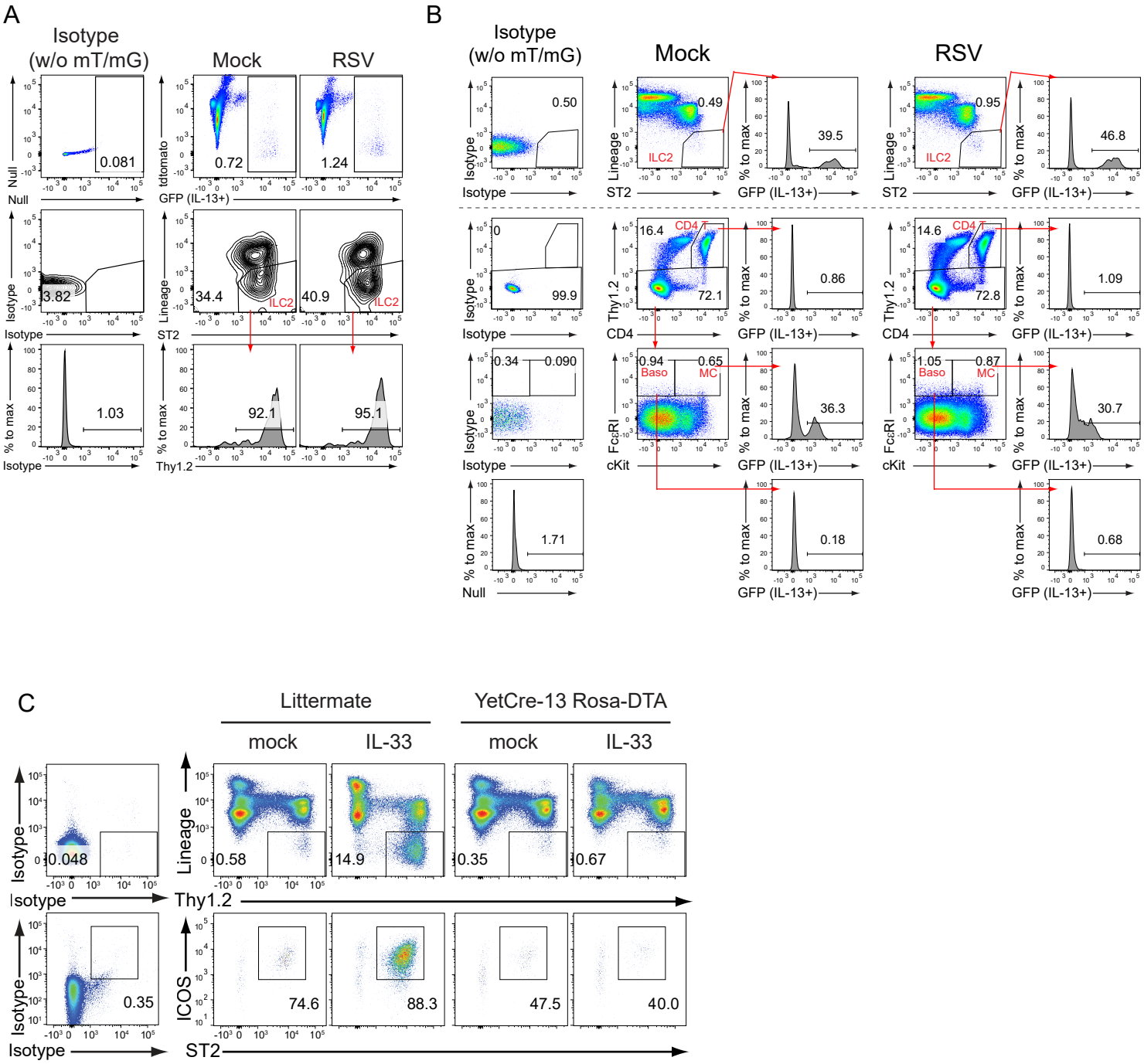


Figure S3. Phenotypic examination of *Il33*$^{f/f}$*LysM*^{cre} and *St2*$^{f/f}$*LysM*^{cre} mice

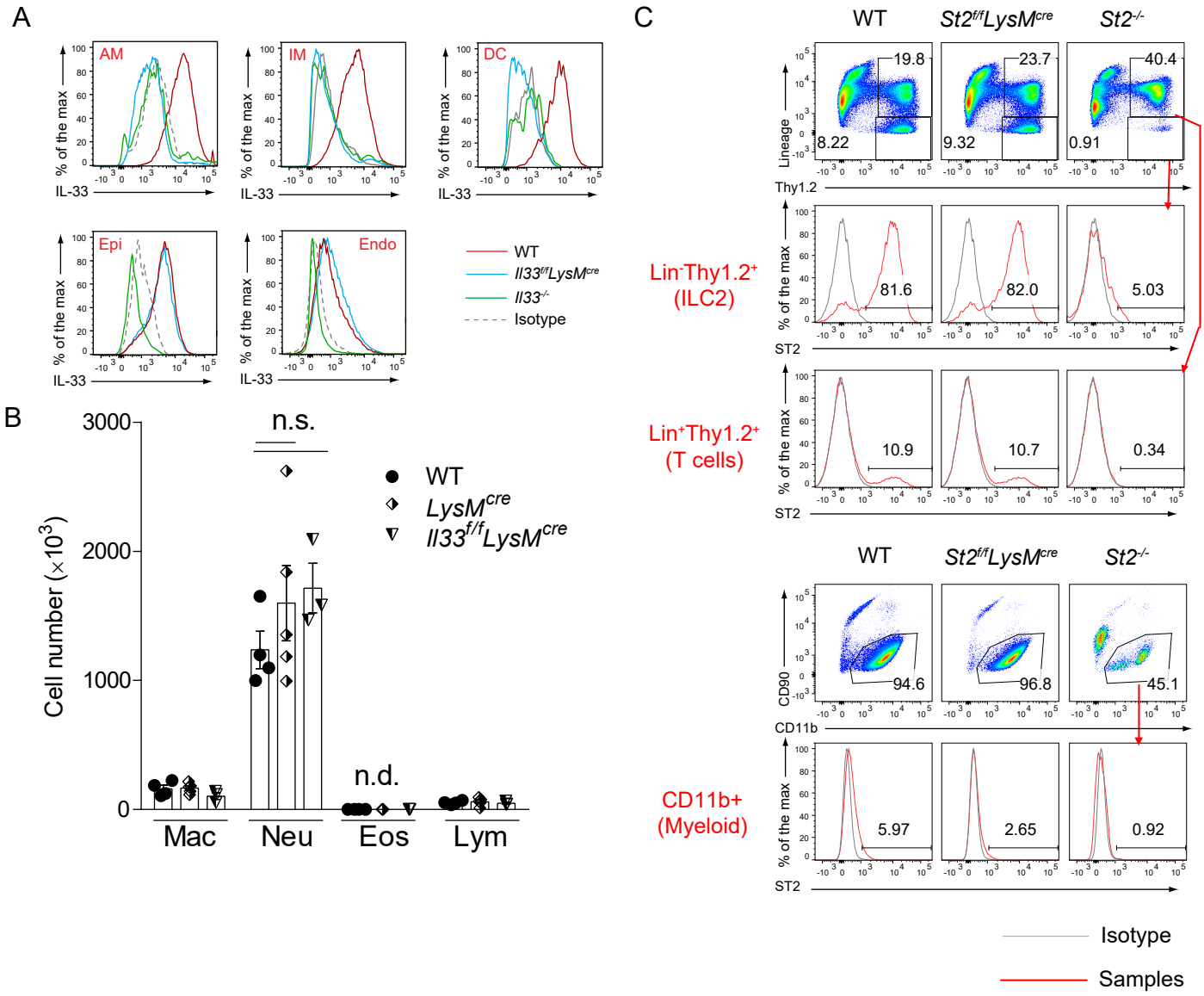


Figure S4. IL-33 deficiency does not affect TSLP expression and viral titer in the lungs

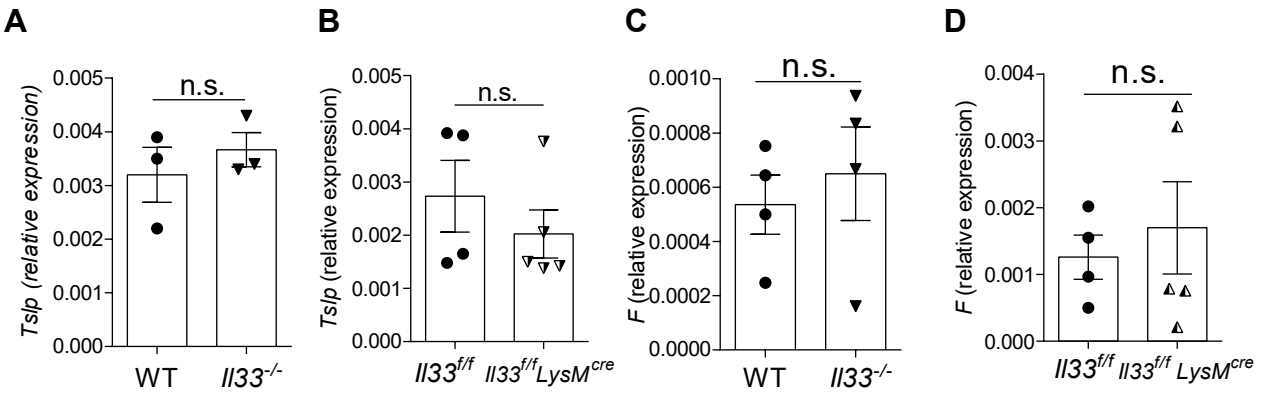


Figure S5. RSV infection results in the death of pulmonary cells

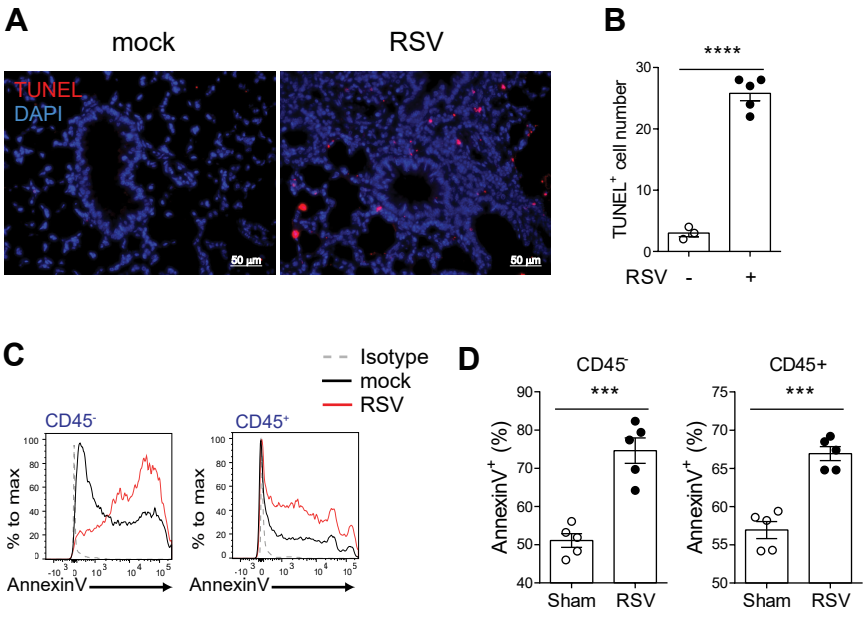
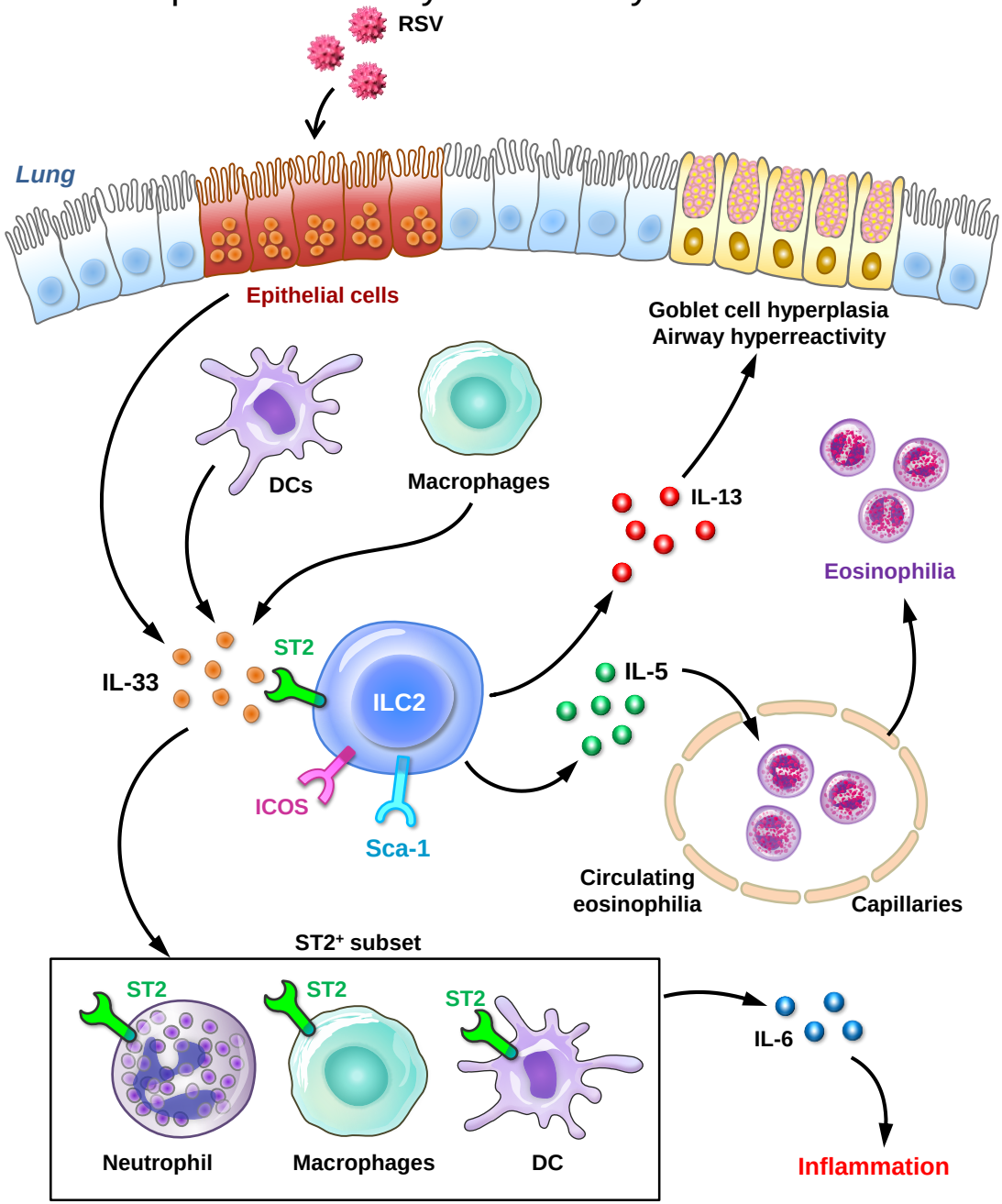


Figure S6. Graphical summary of the study.



DCs: Dendritic cells; ILC2: Group 2 innate lymphoid cells; RSV: Respiratory syncytial virus;
ST2: Suppression of tumorigenicity 2; ICOS: Inducible T-cell costimulator ; Sca-1: Stem cell antigen-1