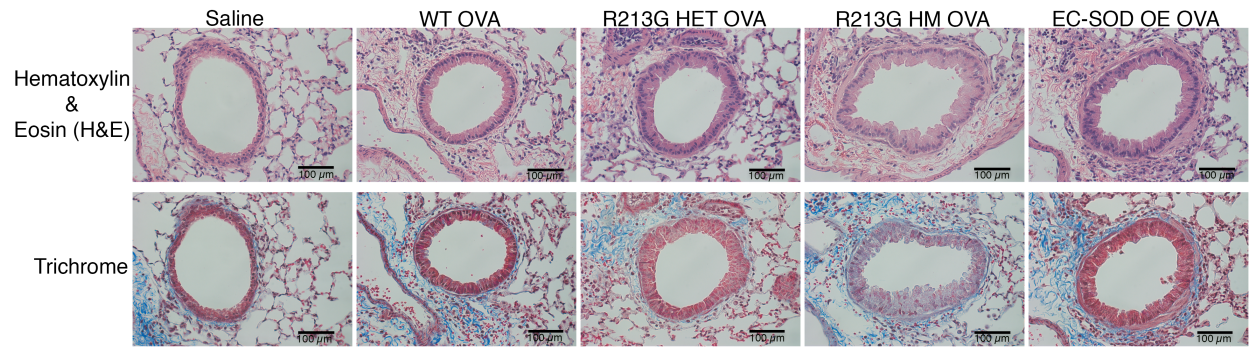


Supplemental Figure 1

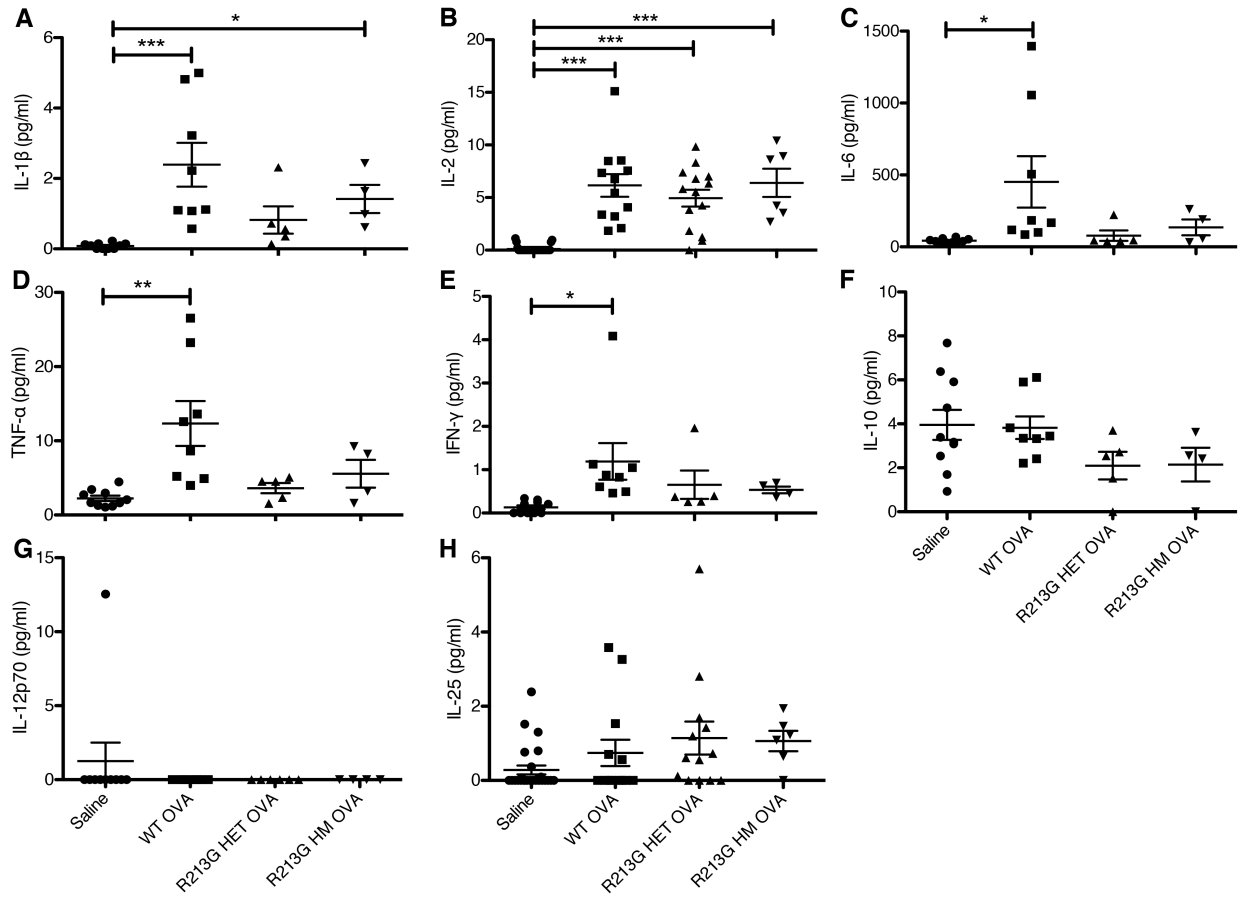
Unlike *SOD3* transcript, EC-SOD protein level does not change in the asthmatic sputum.

(A) *SOD3* mRNA transcript of the same samples used in western blot. Western blot bands (B) and densitometry (C) showing EC-SOD variation among subjects. N = 5/group (**p<0.01). One-way ANOVA was used to determine the statistical significance with Tukey's multiple comparison test. Error bars represent ±SEM.



Supplemental Figure 2

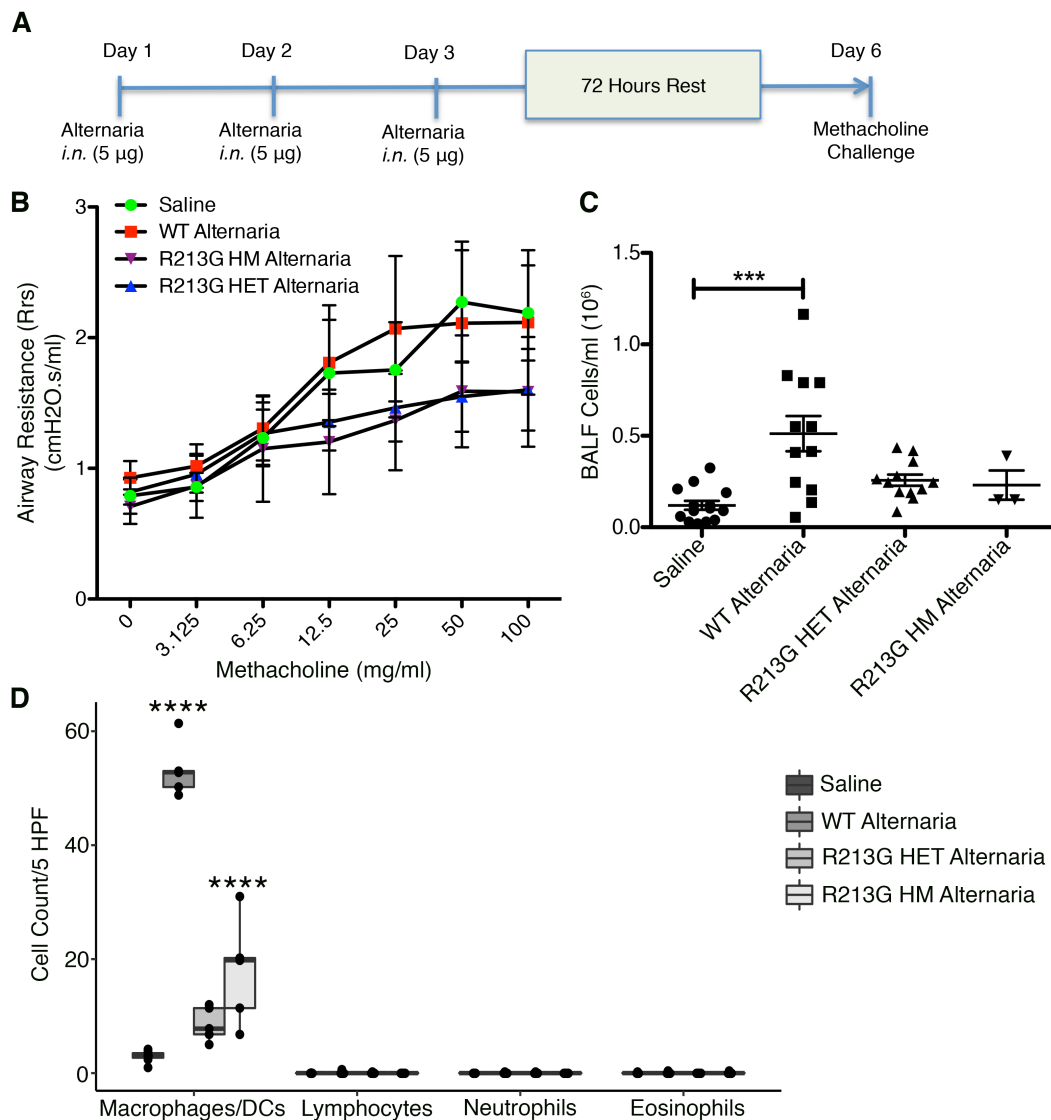
Acute allergic airway inflammation ovalbumin model in C57BL/6 does not change collagen deposition in lungs. 20x magnification of lung sections stained with H&E and Trichrome from saline, WT OVA, R213G HET OVA, R213G HM OVA and EC-SOD OE OVA mice. Scales are shown in the panels (100 μm).



Supplemental Figure 3

R213G protects mice from OVA-induced increase in inflammatory cytokines (A-H).

Changes in IL-1 β (A), IL-2 (B), IL-6 (C), TNF- α (D), IFN- γ (E), IL-10 (F) and IL-12p70 (G) IL-25 (H) with OVA. Saline = 9-20, WT OVA = 8-12, R213G HET OVA = 5-14, R213G HM OVA = 4-6. Statistical significance was determined by One-way ANOVA with Tukey's multiple comparison test. Error bars represent \pm SEM. * p <0.05, ** p <0.01, ***0.001.

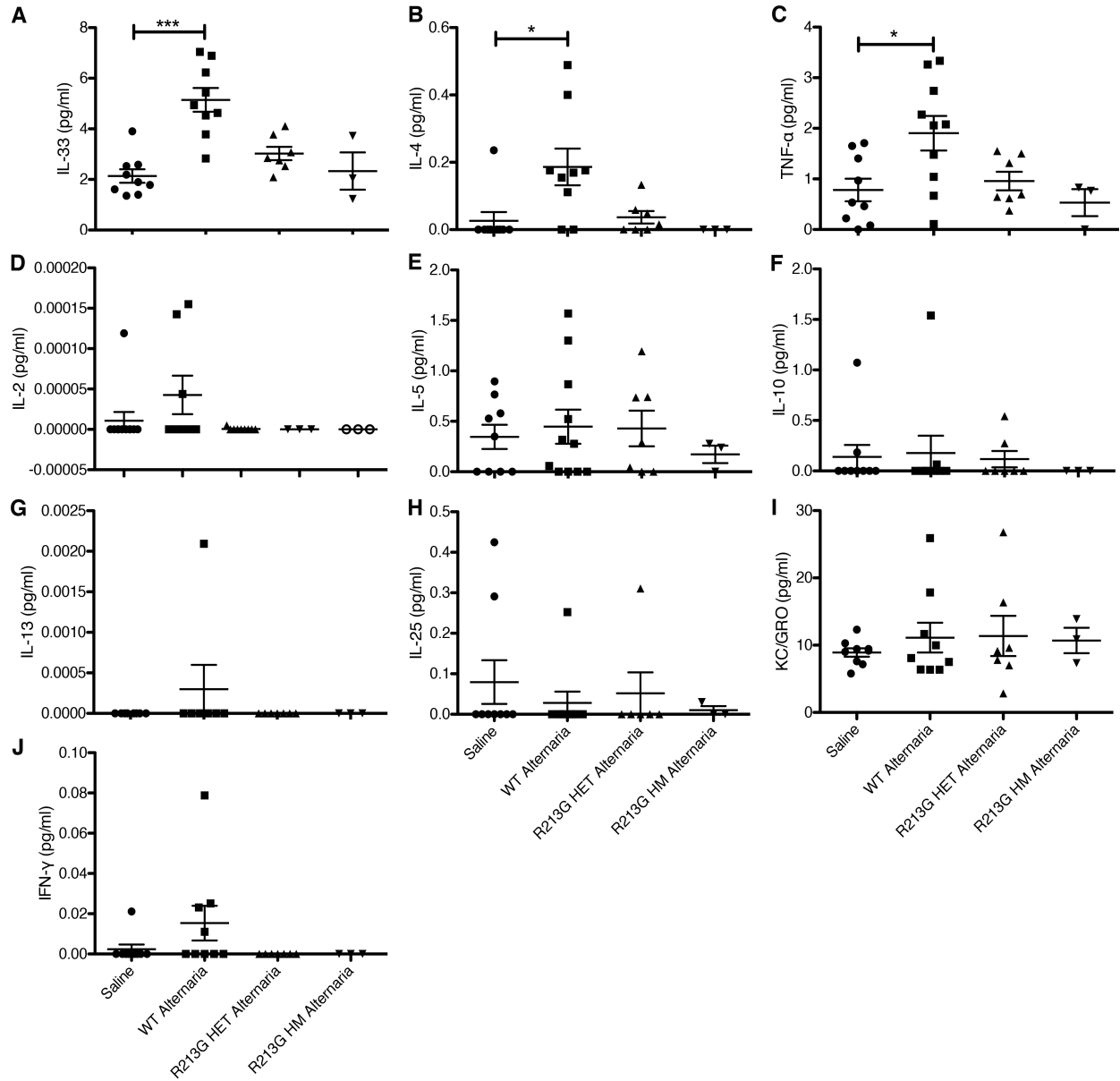


Supplemental Figure 4

R213G protects mice from *Alternaria*-induced inflammatory cell infiltration in an innate model of allergic airway inflammation. (A) Flow chart showing the *Alternaria* exposure protocol. (B) Airway resistance measured as Rrs with flexiVent FX (flexiWare software) at different doses of Methacholine (0 to 100 mg/ml). Inflammatory cell infiltration was measured as total BALF cell count (C) and cell differentials as shown in Supplemental Figure 5D. One-way or Two-way ANOVA was used with Tukey's or Bonferroni multiple comparisons, respectively.

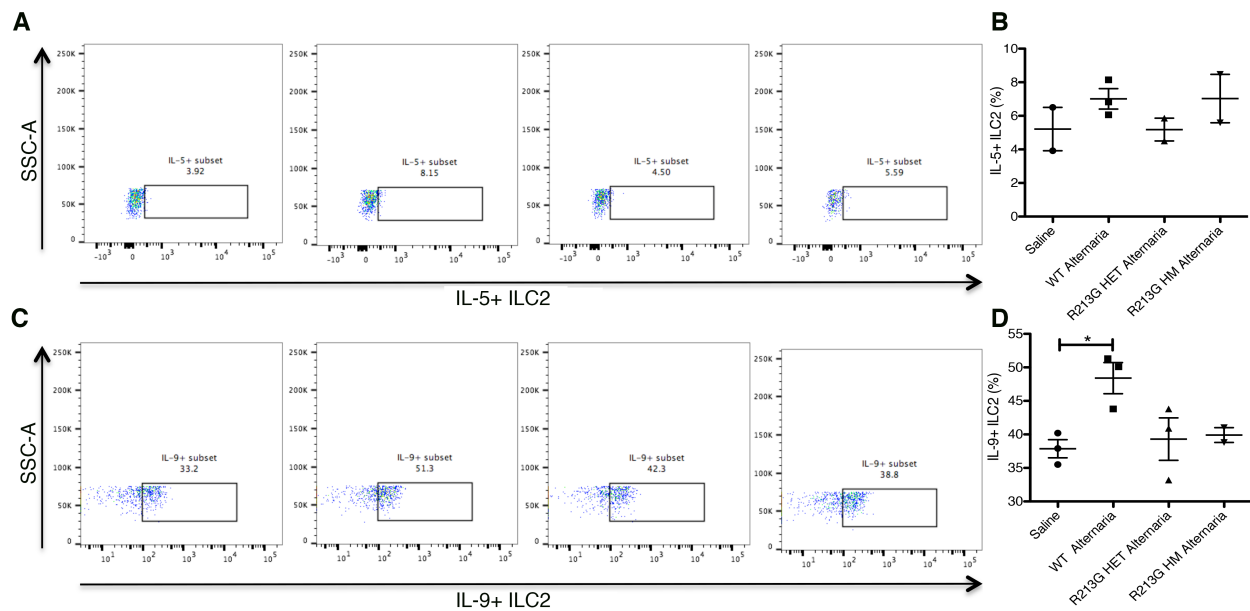
Saline = 12, WT *Alternaria* = 12, R213G HET *Alternaria* = 12, R213G HM *Alternaria* = 4

(*** $p < 0.001$, **** $p < 0.0001$, compared to saline). Error bars represent \pm SEM.



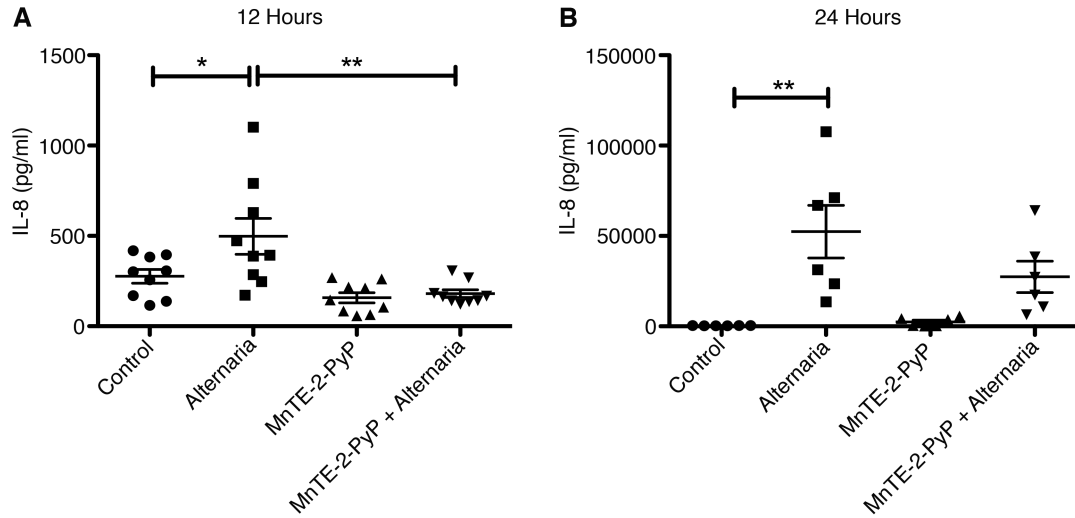
Supplemental Figure 5

R213G protects mice from *Alternaria*-induced inflammatory cytokines in an innate model of allergic airway inflammation. (A-J). Changes in IL-33 (A), IL-4 (B), TNF- α (C), IL-2 (D), IL-5 (E), IL-10 (F), IL-13 (G) IL-25 (H), KC/GRO (I), IFN- γ (J) with OVA. Saline = 9, WT Alternaria = 9, R213G HET Alternaria = 8, R213G HM Alternaria = 3. Statistical significance was determined by One-way ANOVA with Tukey's multiple comparison test. Error bars represent \pm SEM. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



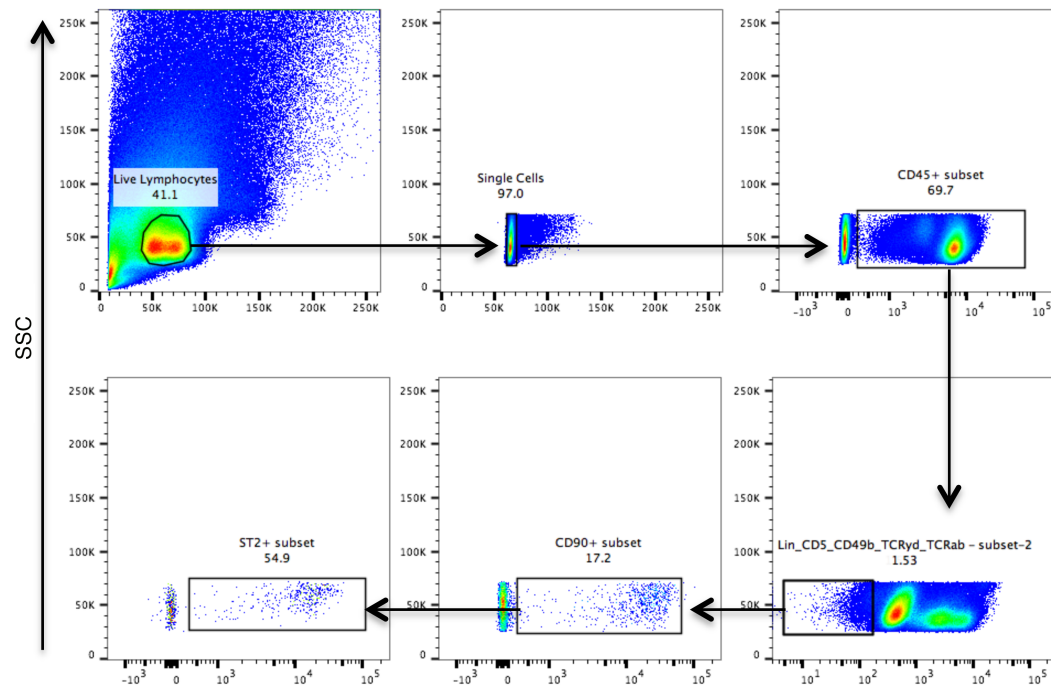
Supplemental Figure 6

R213G reduces *Alternaria*-induced IL-9⁺ ILC2 in mouse lungs. Histograms showing: (A) IL5⁺ ILC2 (Lin⁻ (CD3, Ly-6G/Ly-6C, CD11b, CD45R/B220, TER-119) /CD5⁻/ CD49b⁻/ TCRαβ⁻/ TCRγδ⁻/CD45⁺/CD90⁺/ST2⁺ or GATA⁺/IL-5⁺) and (C) IL9⁺ ILC2 (Lin⁻ (CD3, Ly-6G/Ly-6C, CD11b, CD45R/B220, TER-119) /CD5⁻/ CD49b⁻/ TCRαβ⁻/ TCRγδ⁻/CD45⁺/CD90⁺/ST2⁺ or GATA⁺/IL-9⁺) in different groups. Analysis of IL-5⁺ or IL-9⁺ ILC2 cell percent is shown in Supplemental Figures 7B and 7C, respectively. One-way ANOVA was used with Tukey's multiple comparison test. Error bars represent ±SEM. (N = 2-3/group) *p<0.05.



Supplemental Figure 7

SOD mimetic reduces *Alternaria*-induced IL-8 secretion from BEAS2B cells. IL-8 secretion (pg/ml) was measured in the cell culture supernatant in 12 hours, N = 9/group (**A**) and 24 hours, N = 6/group (**B**). Data was generated with 4 different BEAS2B cell passages in 3 independent experiments for 12-hour time point and 3 different cell passages in 3 independent experiments for 24-hour time point. One-way ANOVA was used with Tukey's multiple comparison test. Error bars represent \pm SEM. * $p < 0.05$, ** $p < 0.01$.



Supplemental Figure 8

Gating strategy for ILC2. Scatter plot showing gating strategy to identify ILC2 in mouse lungs.

Supplemental Table 1: Antibodies used in Flowcytometry and Western Blot

Antibodies Used					
#	Marker	Catalog #	Company	Clone	Lot #
1	CD45.2	109806	Biolegend	104	B197974
2	Lineage Cocktail (CD3, Ly-6G/Ly-6C, CD11b, CD45R/B220, TER-119)	133310	Biolegend	-	B205956
3	CD5	48-0051-82	eBioscience	53-7.3	4276917
4	CD49b	108918	Biolegend	DX5	B211449
5	TCR $\alpha\beta$	127816	Biolegend	B20.1	B194511
6	TCR $\gamma\delta$	48-5711-82	eBioscience	eBioGL3	4283584
7	CD25	45-0251-82	eBioscience	PC61.5	E08322-1634
8	CD90	FAB7335N	Novus	A700	1449095
9	ST2 (IL-33R)	101001PE	mdbiosciences	DJ8	526410
10	GATA-3	46-9966-42	eBioscience	TWAJ	4288749
11	IL-5	504306	Biolegend	TRFK5	B2009977
12	IL-13	NBP1-43239UV	Novus	13A	4274531
13	IL-9	514106	Biolegend	RM9A4	B201623
14	CD16/32	101302	Biolegend	93	B211222
15	MUC5AC	MA1-38223	Thermo Fisher	45M1	RD2184141
16	IL-33	MAB3626	R&D Systems	396118	GR22767-17
17	β -Actin	4967S	Sigma-Aldrich	-	7
18	Mouse HRP	HAF007	Novus	-	FIM2916021
19	Rabbit HRP	HAF008	Novus	-	FIN1715091
20	EC-SOD (56)	Made for NJH	Lampire	-	-

