SUPPLEMENTARY FIGURE LEGENDS

Supplementary Figure 1. IL-22 is not produced in lung ILCs, $CD3^+CD8^+$T cells or $CD3^+\gamma\delta$ TCR^+ T cells. Representative FACS analysis of intracelluar expression of IL-22 by $CD3^-LIN^-CD90^+$, $CD3^+CD8^+$ and $CD3^+TCR\gamma\delta^+$ T cells.

Supplementary Figure 2. Skin TGFβ is important for the ability of skin DC emigrants to induce the production of IL-17A, but not IL-22, IFNγ or IL-13 by naïve T cells Cytokine secretion by naïve $CD4^+$ DO11.10 T cells cultured with DCs isolated from the skin DLN 24 h after tape striping and OVA application in WT mice subjected to intradermal injection of TGFβ neutralizing antibody or isotype control 6 hrs prior to OVA application. No exogenous OVA were added to the cultures. Graphs represent mean±SEM (n=5 per group).

Supplementary Figure 3. IL-22 does not enhance IL-13 mediated lung eosinophilia. A. Dose response analysis of induction of airway eosinophilia by i.n. installation of rIL-13. **B.** Effect of i.n. co-administration of rIL-22 with rIL-13 on airway eosinophilia. Bars represent mean±SEM (n=4-6 per group).

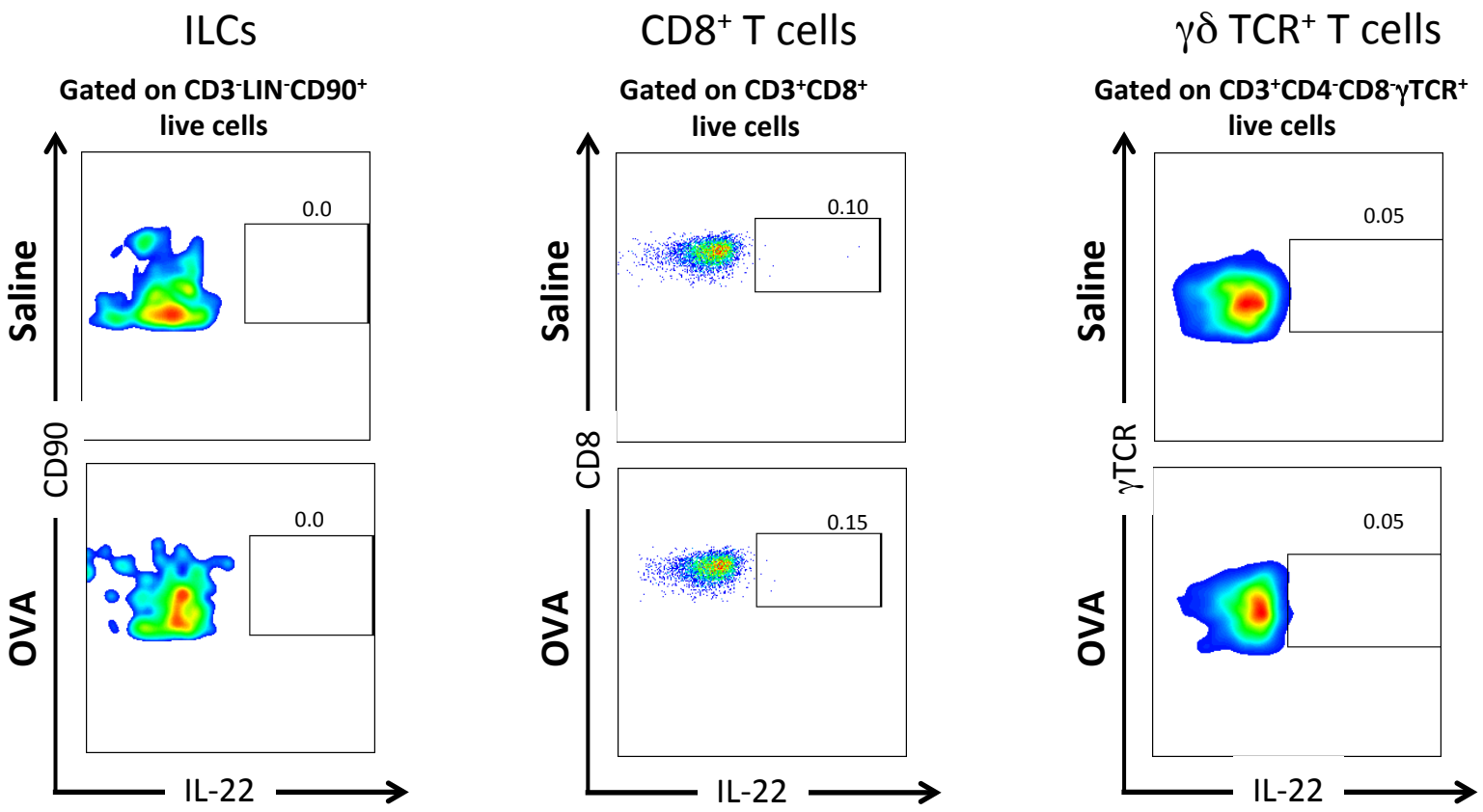
Supplementary Figure 4. IL-22 deficiency in adoptively transferred Th22 polarized OVA-TCR specific cells does not affect *Il17a* or *Ifng* mRNA levels following OVA intranasal challenge in recipient mic. *Il17a* and *Ifng* mRNA levels in the lungs of WT recipients of Th22 polarized OVA-specific $CD4^+$ T cells from DO11.10 and DO11.10/*Il22*$^{-/-}$ mice following i.n. challenge with OVA. Mice that received no T cells were used as controls. Bars represent mean±SEM (n=4-6 per group).

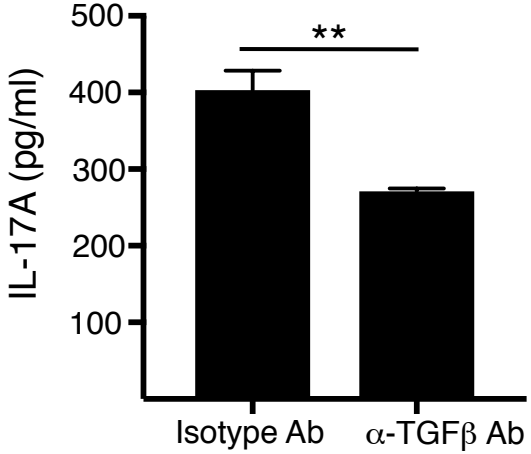
Supplementary Figure 4. IL-22 is not sufficient to promote neutrophil airway inflammation. A-D. Total and differential counts in BALF (A), frequency of neutrophils in lungs (B) chemokine mRNA levels in the lungs (C) and lung resistance

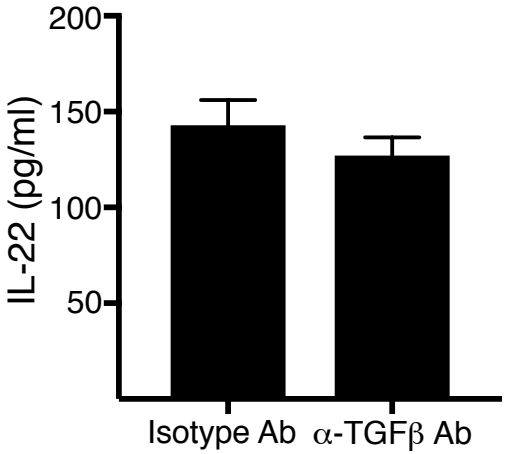
in response to increasing doses of methacholine (D) in WT mice treated intranasally with saline or different rIL-22 doses. Graphs represent mean±SEM (n=4-6 per group).

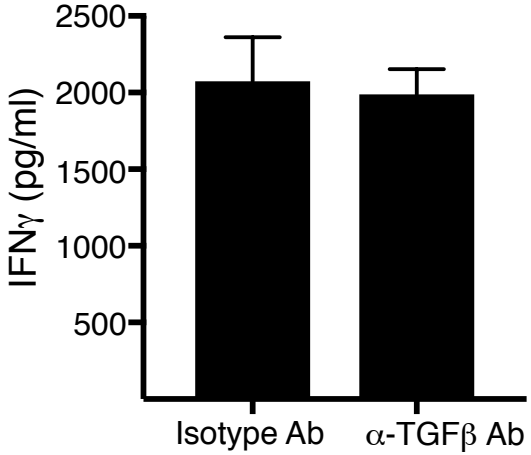
Supplementary Figure 6. Intranasal instillation of rIL-22, rTNFα or its combination does not affect the expression of *Il13*, *Il17a*, *Ifng*, *Il25* or *Il33* in the lungs. *Il13*, *Il17a*, *Ifng*, *Il25* and *Il33* mRNA levels in lungs of WT mice treated intranasally with saline, rIL-22, rTNFα or rIL-22+rTNFα. Bars represent mean±SEM (n=4-6 per group).

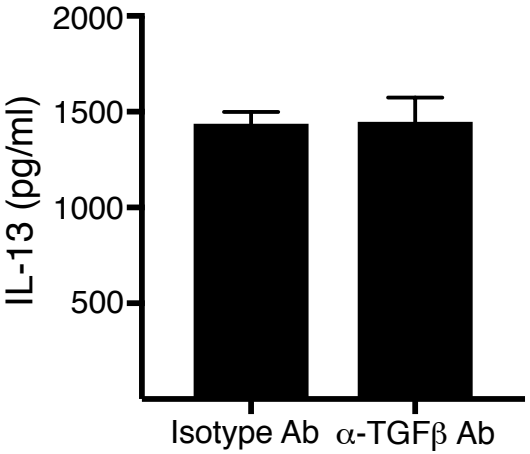
Supplementary Figure 7. The combination of IL-22 and IL-17A is not sufficient to promote neutrophil airway inflammation and AHR. A-D. Total and differential counts in BALF (A), frequency of neutrophils in lungs (B) chemokine mRNA levels in the lungs (C) and lung resistance in response to increasing doses of methacholine (D) in WT mice treated intranasally with saline, rIL-22, rIL-17A or rIL-22+rIL-17A. Graphs represent mean±SEM (n=4-6 per group).

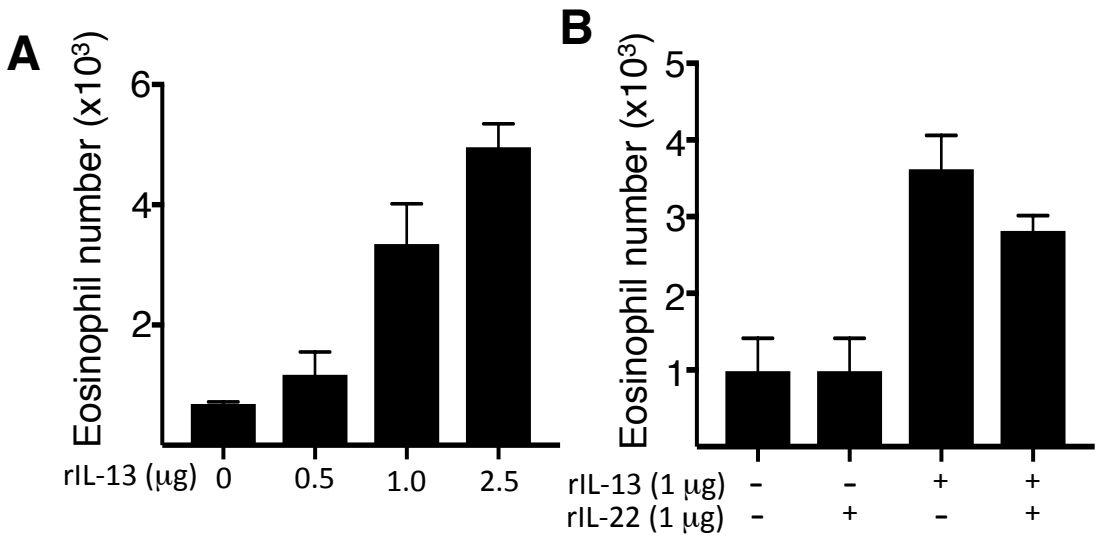

ILCs
Gated on CD3-LIN-CD90+
live cells
Saline
OVA
CD90
IL-22
0.0
0.0
CD8+ T cells
Gated on CD3+CD8+
live cells
Saline
OVA
CD8
IL-22
0.10
0.15
γδ TCR+ T cells
Gated on CD3+CD4-CD8-γTCR+
live cells
Saline
OVA
γTCR
IL-22
0.05
0.05

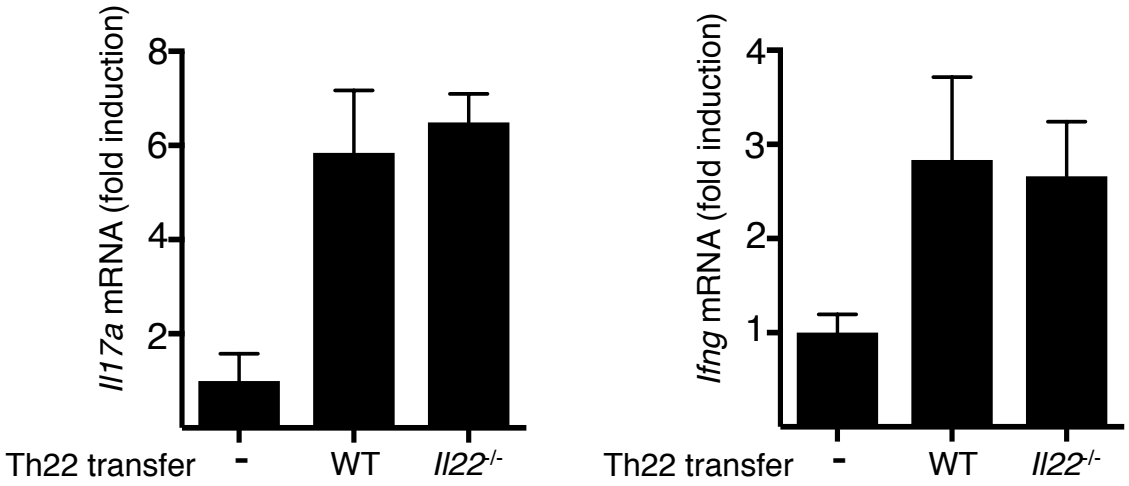

500
400
300
200
100
IL-17A (pg/ml)
**
Isotype Ab
α-TGFβ Ab

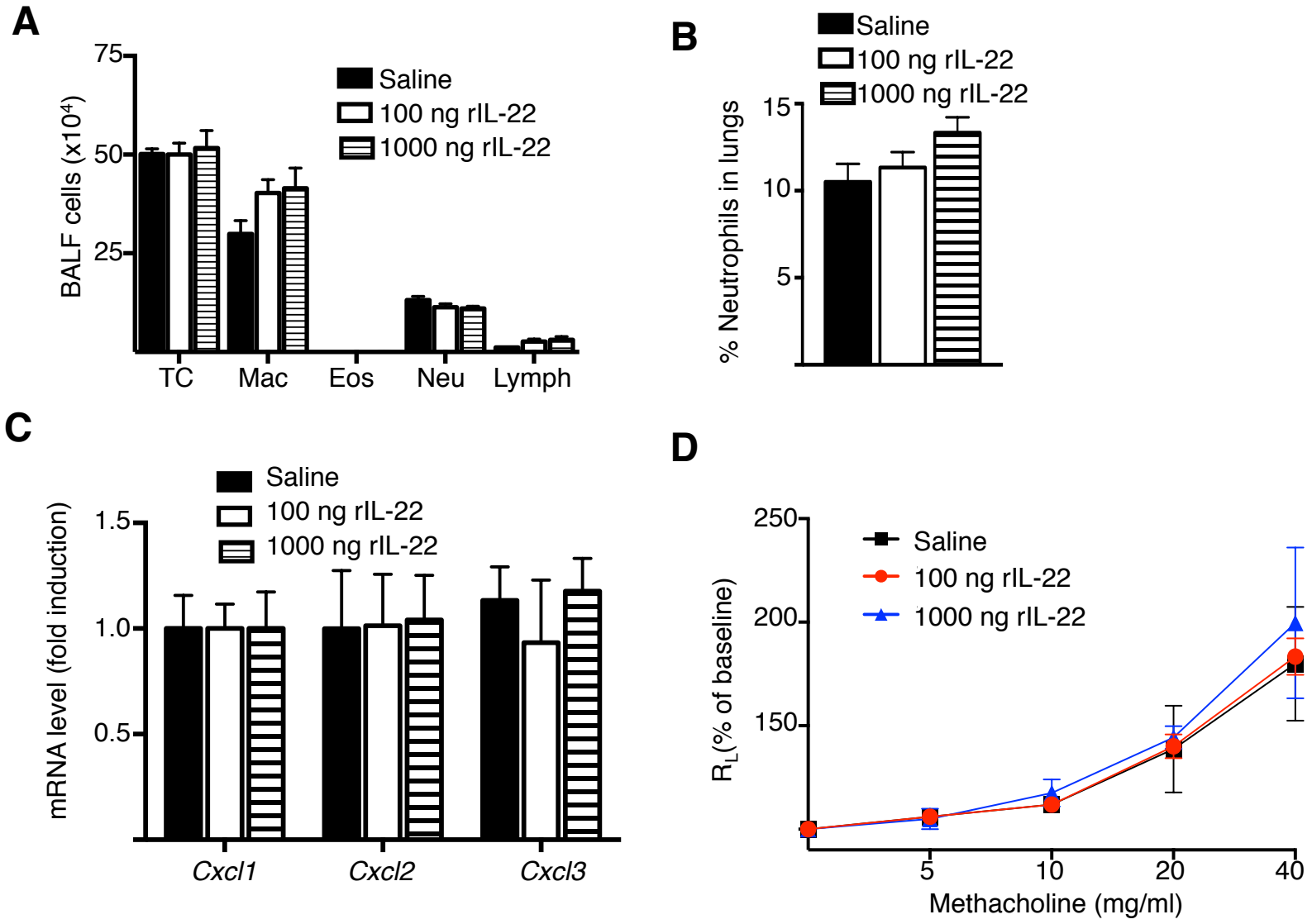

200
150
100
50
IL-22 (pg/ml)
Isotype Ab
α-TGFβ Ab

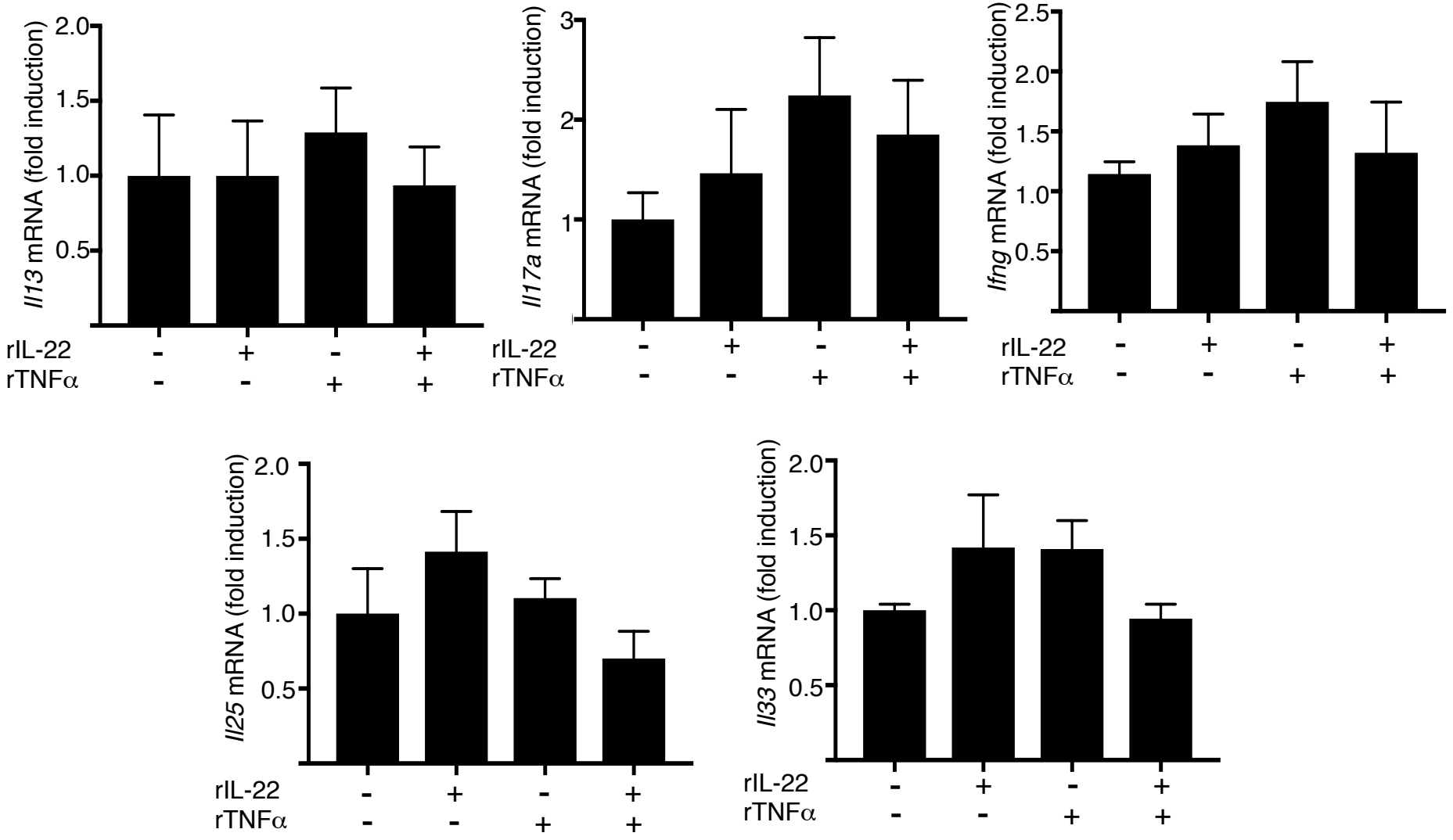

2500
2000
1500
1000
500
IFNγ (pg/ml)
Isotype Ab
α-TGFβ Ab

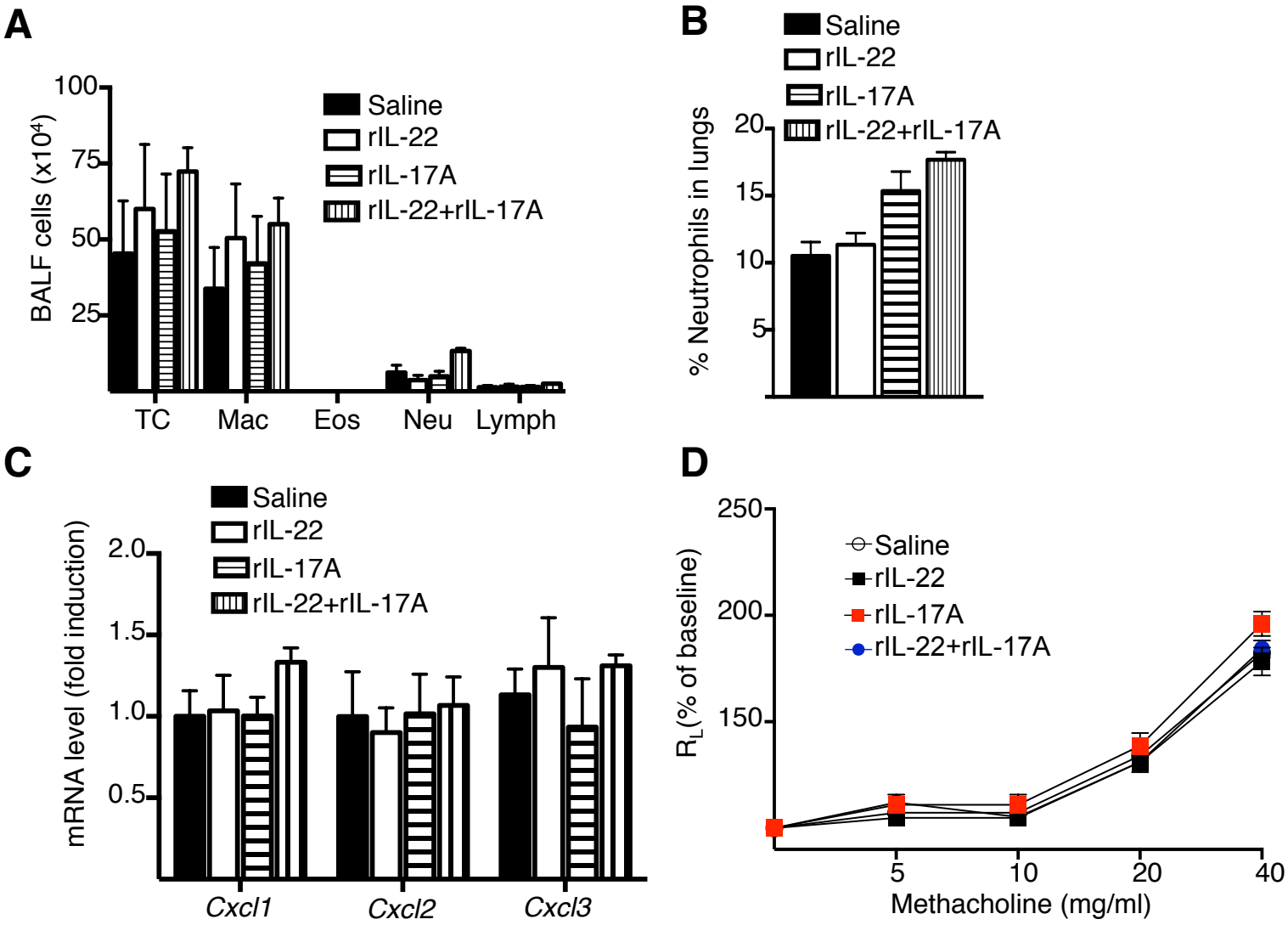

2000
1500
1000
500
IL-13 (pg/ml)
Isotype Ab
α-TGFβ Ab


A
Eosinophil number (x10³)
6
4
2
rIL-13 (μg) 0
0.5
1.0
2.5
B
Eosinophil number (x10³)
5
4
3
2
1
rIL-13 (1 μg) - - + +
rIL-22 (1 μg) - + - +


Il17a mRNA (fold induction)
8
6
4
2
Th22 transfer
-
WT
Il22-/-
Ifng mRNA (fold induction)
4
3
2
1
Th22 transfer
-
WT
Il22-/-


A
75
50
25
BALF cells (x10⁴)
Saline
100 ng rIL-22
1000 ng rIL-22
TC
Mac
Eos
Neu
Lymph
B
Saline
100 ng rIL-22
1000 ng rIL-22
15
10
5
% Neutrophils in lungs
C
Saline
100 ng rIL-22
1000 ng rIL-22
1.5
1.0
0.5
mRNA level (fold induction)
Cxcl1
Cxcl2
Cxcl3
D
250
200
150
R_L(% of baseline)
Saline
100 ng rIL-22
1000 ng rIL-22
5
10
20
40
Methacholine (mg/ml)


Il13 mRNA (fold induction)
2.0
1.5
1.0
0.5
rIL-22 - + - +
rTNFα - - + +
Il17a mRNA (fold induction)
3
2
1
rIL-22 - + - +
rTNFα - - + +
Ifng mRNA (fold induction)
2.5
2.0
1.5
1.0
0.5
rIL-22 - + - +
rTNFα - - + +
Il25 mRNA (fold induction)
2.0
1.5
1.0
0.5
rIL-22 - + - +
rTNFα - - + +
Il33 mRNA (fold induction)
2.0
1.5
1.0
0.5
rIL-22 - + - +
rTNFα - - + +


A
BALF cells (x10⁴)
100
75
50
25
Saline
rIL-22
rIL-17A
rIL-22+rIL-17A
TC
Mac
Eos
Neu
Lymph
B
Saline
rIL-22
rIL-17A
rIL-22+rIL-17A
% Neutrophils in lungs
20
15
10
5
C
mRNA level (fold induction)
2.0
1.5
1.0
0.5
Saline
rIL-22
rIL-17A
rIL-22+rIL-17A
Cxcl1
Cxcl2
Cxcl3
D
R_L (% of baseline)
250
200
150
Saline
rIL-22
rIL-17A
rIL-22+rIL-17A
5
10
20
40
Methacholine (mg/ml)