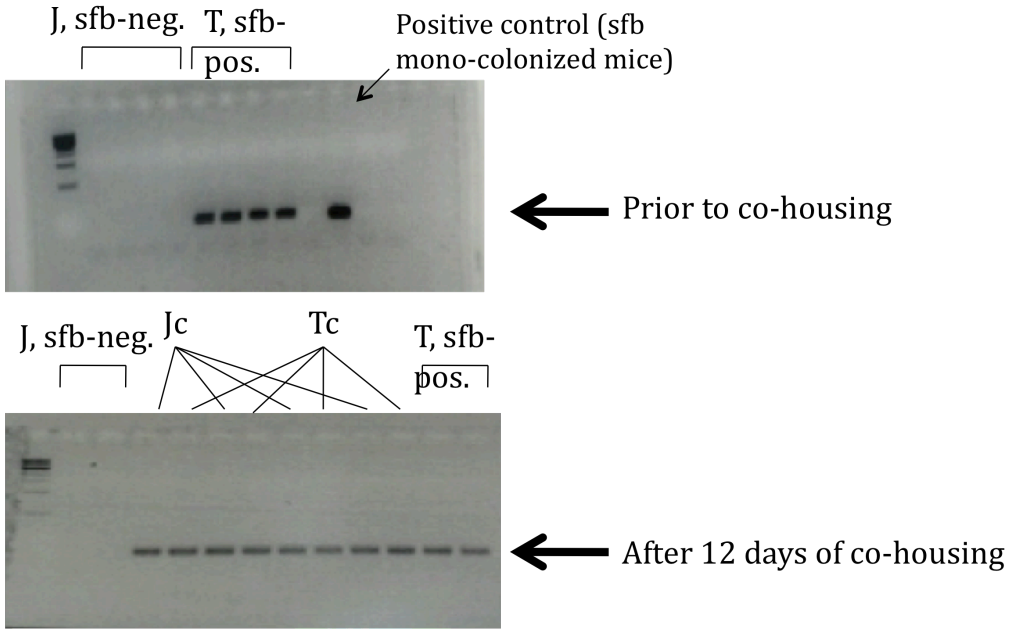
Supplemental Figure S1.

Sfb-PCR

Stool was collected from mice, bacterial DNA extracted, and sfb-presence or absence was confirmed by PCR. Each lane represents results from 4 grouped mice. Prior to co-housing, all Jackson mice were sfb negative, while after 12 days of co-housing with Taconic mice, all became sfb positive. Taconic mice were sfb positive to begin with and remained so.



Jc= Jackson mice co-housed with Taconic mice
Tc=Taconic mice co-housed with Jackson mice

Supplemental Figure S2. Isotype control stains for Figure 4 M-O.

In order to identify the types of cells capable of producing IL-22 in the lungs after infection with MRSA, we stained lung tissue sections 18 h after MRSA infection of mice for RORγt, IL-22, and CD3e **(Figure 4m-o).** This figure **(Supplemental Figure S2 a-c)** depicts isotype control stains for **Figure 4m-o**.

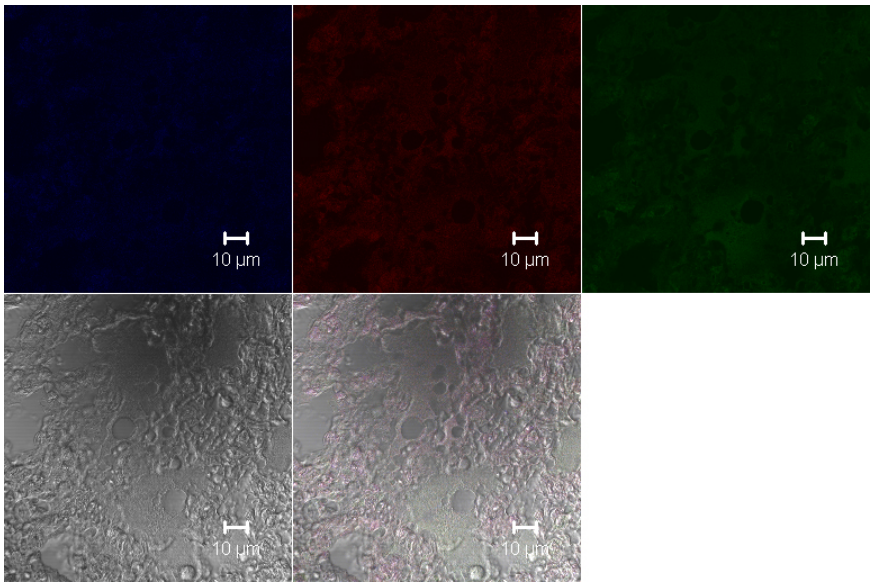
The upper left squares show lung tissue stained with RORgamma antibody **(Figure 4m-o)** or Rat IgG2-APC control (blue), the upper middle squares show staining with IL22 antibody **(Figure 4m-o)** or rabbit IgG AF568 control (red), and the upper right squares show staining with CD3 **(Figure 4m-o)** or Hamster IgG FITC control (green). The lower left square shows phase contrast images and the lower right square a composite of blue, red & green channels showing colocalization (white).

(A) Lung tissue sections of an sfb-positive mouse; isotype control stains for **Figure 4m**. **(B)** Lung tissue sections of a previously sfb-negative mouse after acquisition of sfb 2 weeks prior by nasogastric lavage; isotype control stains for **Figure 4n**. **(C)** Lung tissue sections of an sfb-negative mouse; isotype control stains for **Figure 4o**.

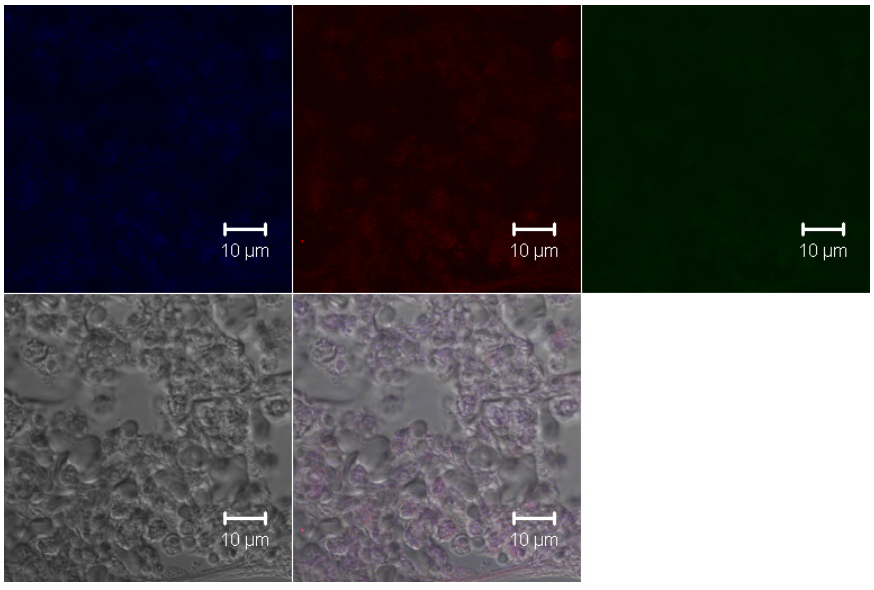
All samples (**Figure 4m-o** and for this figure) were labeled with the same sample preparation of antibodies (one tube made with dilutions as described & aliquoted onto tissue section). Images were processed using a Zeiss confocal microscope equipped with a 63x oil objective. Once background fluorescence was set on the control slides (as shown here in **Figure S2a-c**), experimental slides (**Figure 4m-**

o) were imaged using the same settings. Images were collected & processed using Zeiss LSM software.

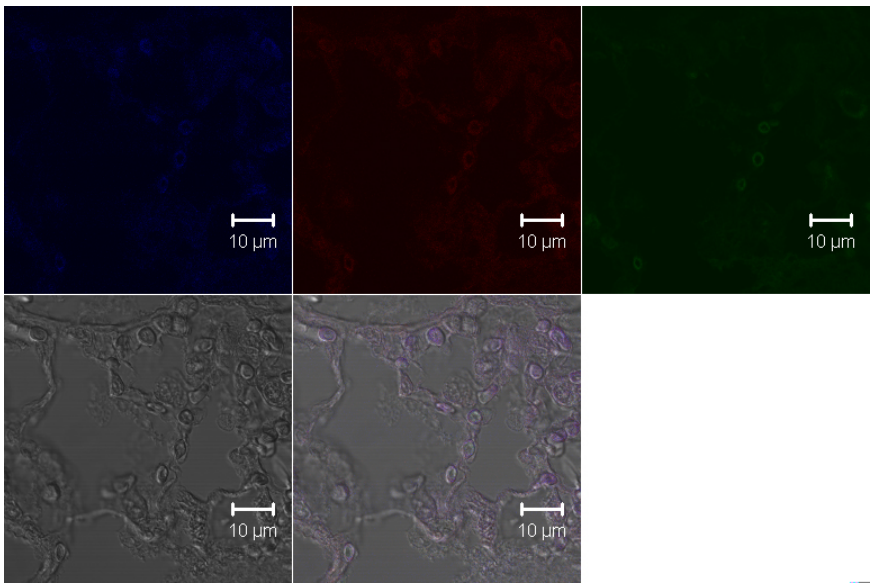
(A)



(B)



(C)

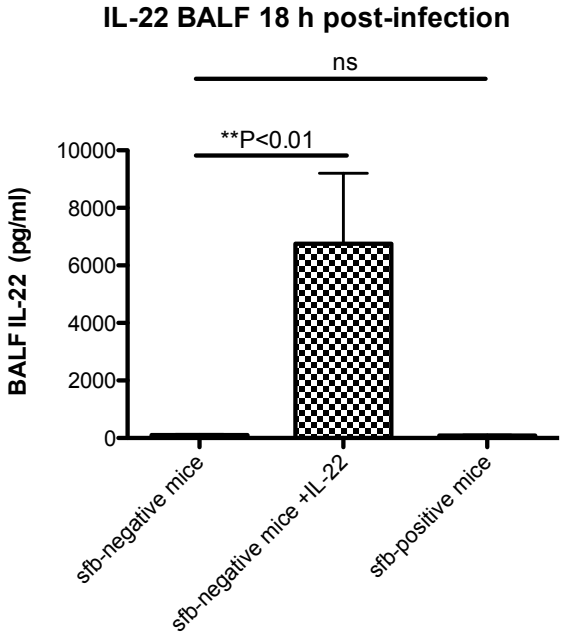


Supplemental Figure S3. Levels of cytokines in murine BALF

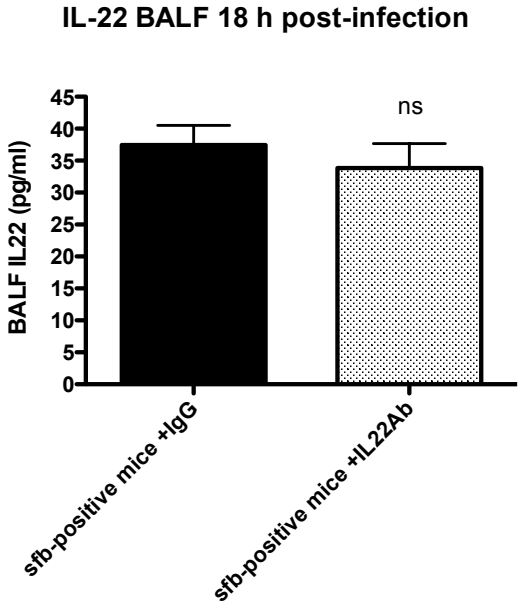
A) BALF IL-22 18 h post-infection following exogenous administration of IL-22.

B) BALF IL-22 18 h post-infection following antibody-mediated neutralization of IL-22. **(C)** BALF IL-17 18 h post-infection following antibody-mediated neutralization of IL-22.

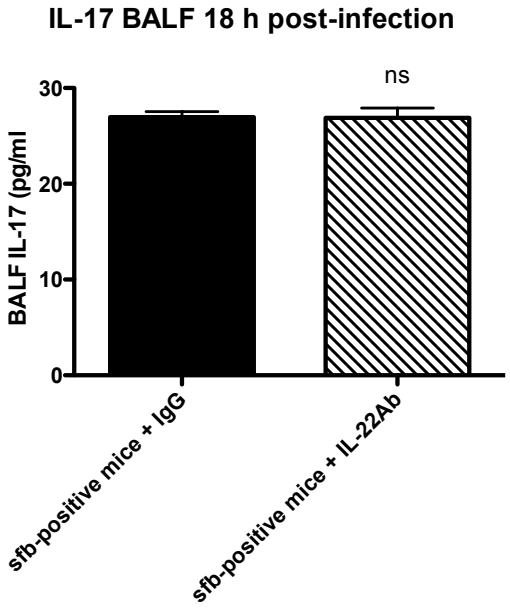
A)



B)


IL-22 BALF 18 h post-infection
BALF IL22 (pg/ml)
45
40
35
30
25
20
15
10
5
0
ns
sfb-positive mice +IgG
sfb-positive mice +IL22Ab

C)


IL-17 BALF 18 h post-infection
BALF IL-17 (pg/ml
30
20
10
0
ns
sfb-positive mice + IgG
sfb-positive mice + IL-22Ab

Supplemental Figure S4. Exogenous rIL-22 administration in sfb-positive mice has no protective effect on susceptibility to MRSA pneumonia.

C57BL/6 mice from Taconic (sfb-positive) were either given rIL-22 or buffer only simultaneously to challenge with MRSA strain Lac at a dose of $5x10^8$ CFU (n=10 and 11 mice per group, respectively). Bacterial CFU/gram lung tissue 18 h post-infection show no significant difference between groups. Symbols represent individual animals; bars represent the medians. *P* value was determined by Mann Whitney U test.