FIGURES

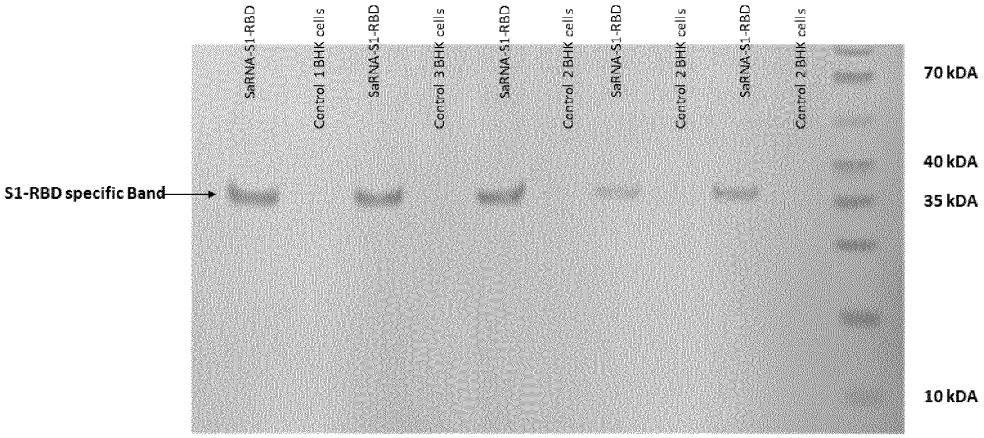


Fig. 1

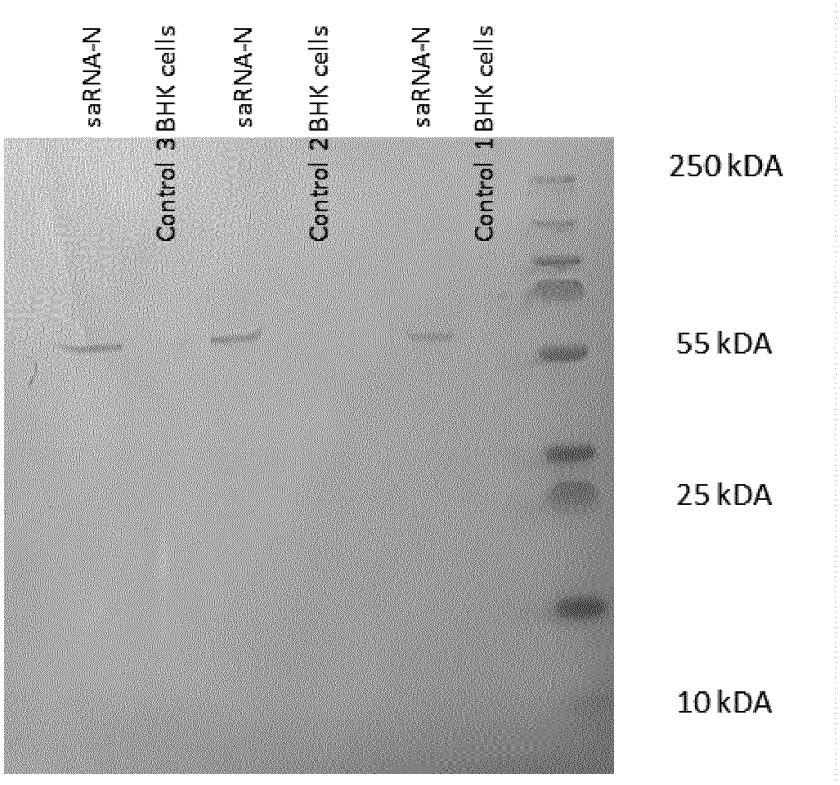


Fig. 2

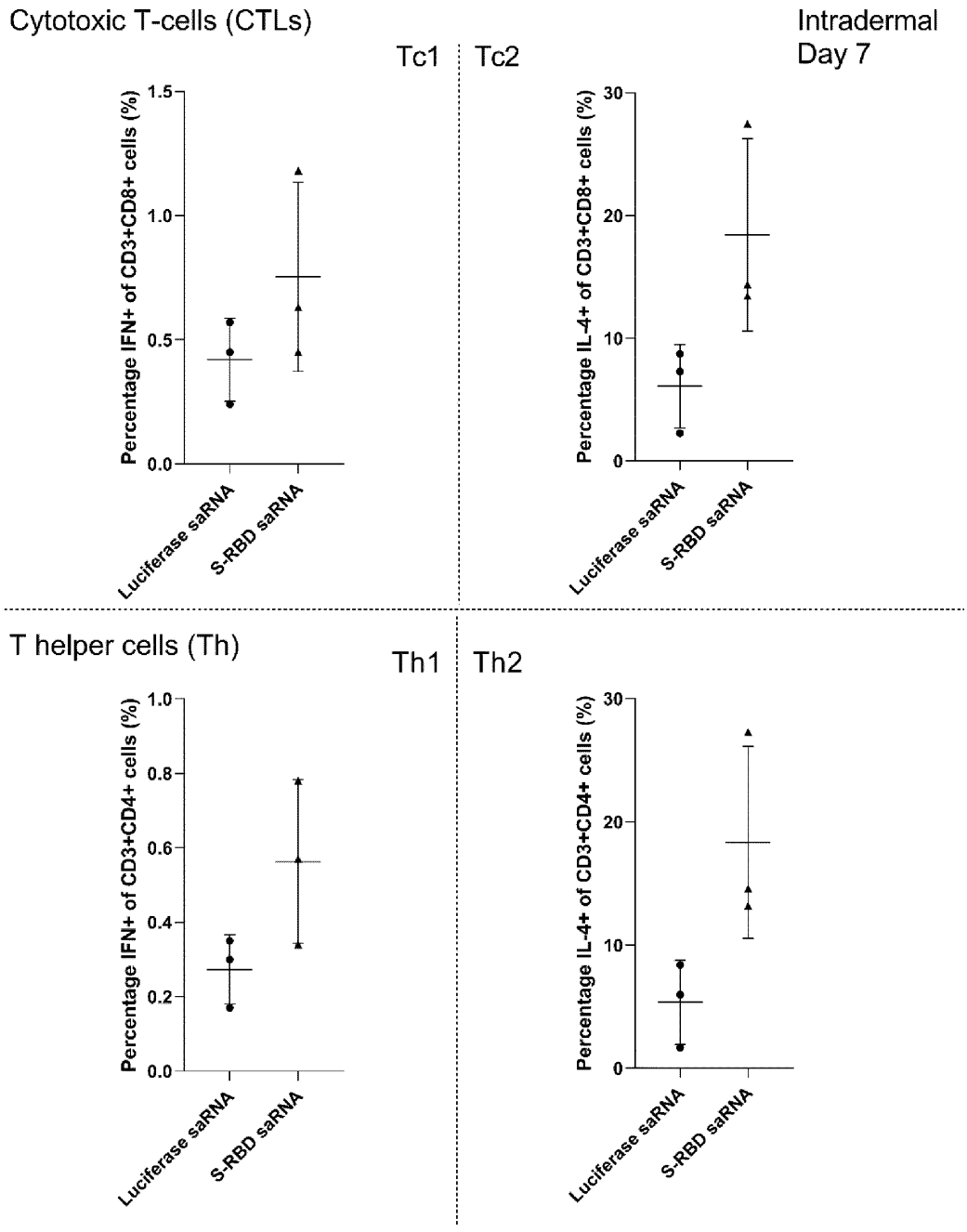

Cytotoxic T-cells (CTLs)
Intradermal
Day 7
Tc1
Tc2
Percentage IFN+ of CD3+CD8+ cells (%)
1.5
1.0
0.5
0.0
Luciferase saRNA
S-RBD saRNA
Percentage IL-4+ of CD3+CD8+ cells (%)
30
20
10
0
Luciferase saRNA
S-RBD saRNA
T helper cells (Th)
Th1
Th2
Percentage IFN+ of CD3+CD4+ cells (%)
1.0
0.8
0.6
0.4
0.2
0.0
Luciferase saRNA
S-RBD saRNA
Percentage IL-4+ of CD3+CD4+ cells (%)
30
20
10
0
Luciferase saRNA
S-RBD saRNA

Fig. 3

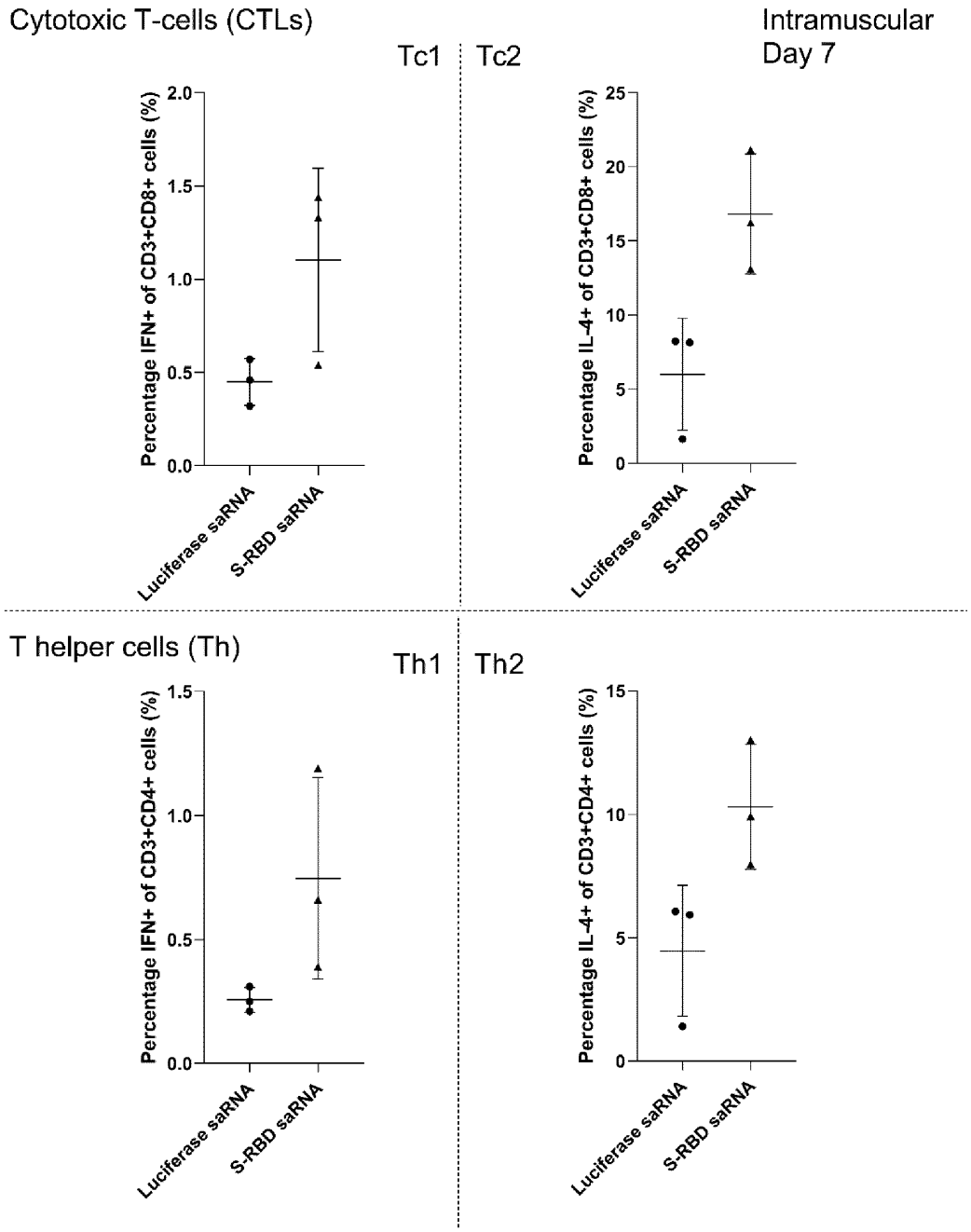

Cytotoxic T-cells (CTLs)
Tc1
Tc2
Intramuscular
Day 7
Percentage IFN+ of CD3+CD8+ cells (%)
2.0
1.5
1.0
0.5
0.0
Luciferase saRNA
S-RBD saRNA
Percentage IL-4+ of CD3+CD8+ cells (%)
25
20
15
10
5
0
T helper cells (Th)
Th1
Th2
Percentage IFN+ of CD3+CD4+ cells (%)
1.5
1.0
0.5
0.0
Percentage IL-4+ of CD3+CD4+ cells (%)
15
10
5
0

Fig. 4

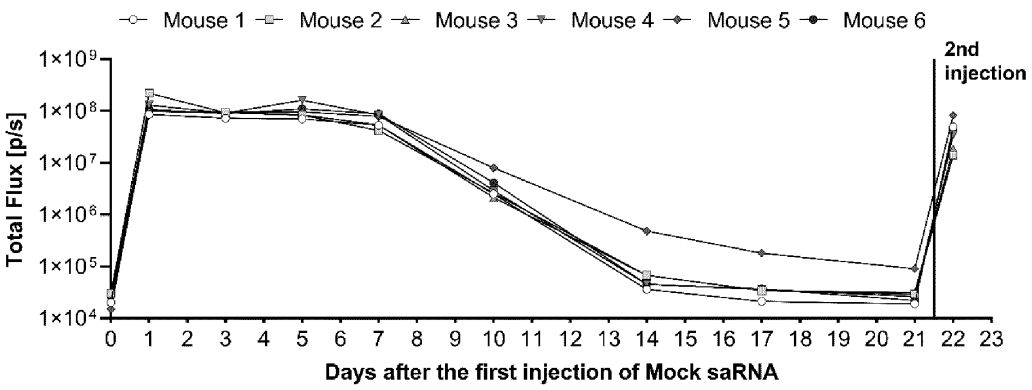

Mouse 1
Mouse 2
Mouse 3
Mouse 4
Mouse 5
Mouse 6
2nd injection
Total Flux [p/s]
1×10⁹
1×10⁸
1×10⁷
1×10⁶
1×10⁵
1×10⁴
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Days after the first injection of Mock saRNA

Fig. 5

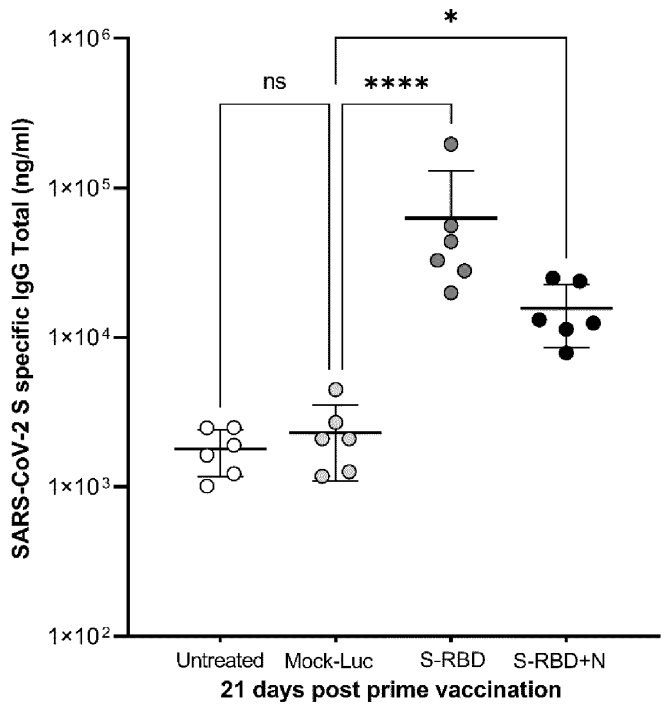

*
ns
****
SARS-CoV-2 S specific IgG Total (ng/ml)
1×10⁶
1×10⁵
1×10⁴
1×10³
1×10²
Untreated
Mock-Luc
S-RBD
S-RBD+N
21 days post prime vaccination

Fig. 6

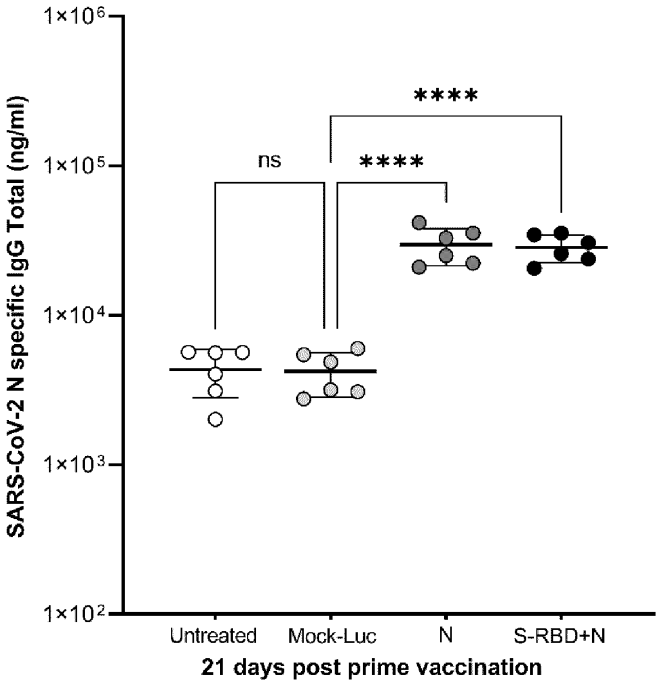

1×10⁶
1×10⁵
1×10⁴
1×10³
1×10²
SARS-CoV-2 N specific IgG Total (ng/ml)
ns
****
****
Untreated
Mock-Luc
N
S-RBD+N
21 days post prime vaccination

Fig. 7

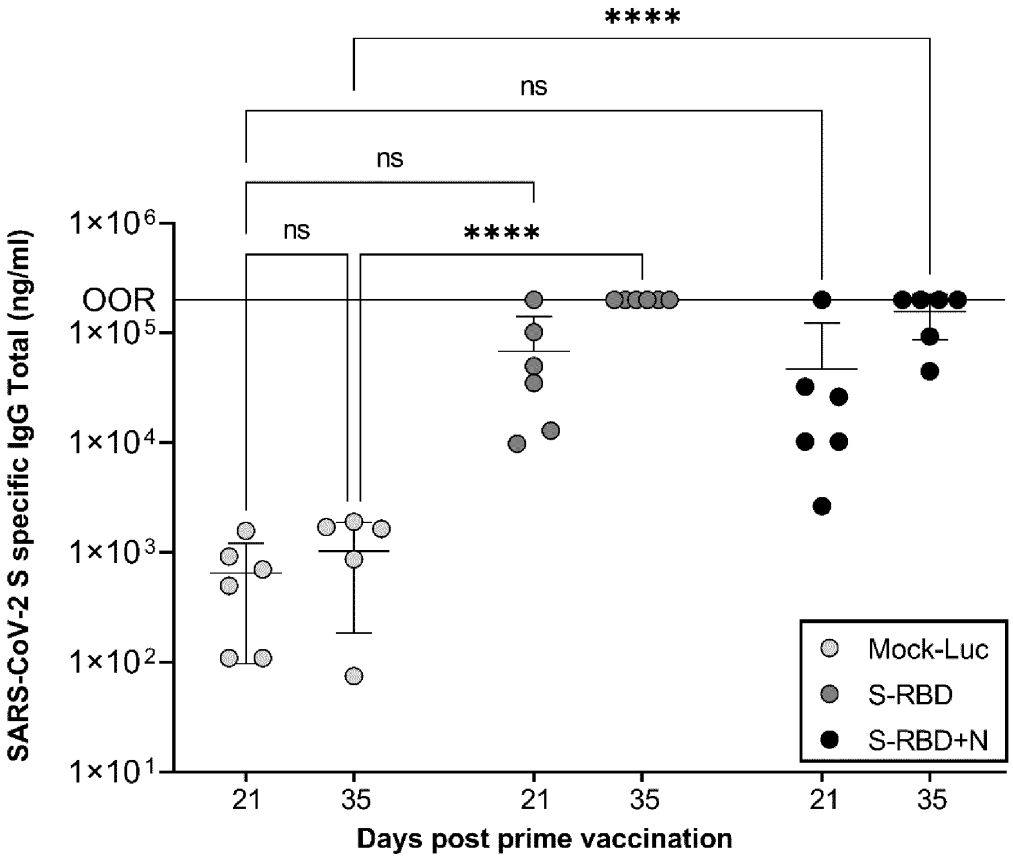

****
ns
ns
ns
****
1×10^6
OOR
1×10^5
1×10^4
1×10^3
1×10^2
1×10^1
SARS-CoV-2 S specific IgG Total (ng/ml)
21
35
21
35
21
35
Days post prime vaccination
Mock-Luc
S-RBD
S-RBD+N

Fig. 8

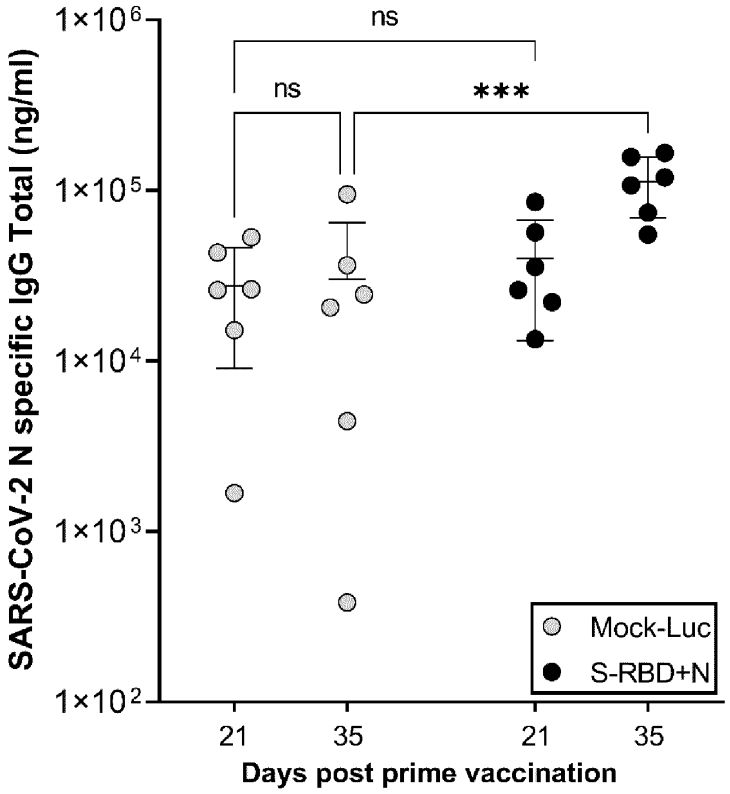

SARS-CoV-2 N specific IgG Total (ng/ml)
1×10⁶
1×10⁵
1×10⁴
1×10³
1×10²
ns
ns
***
Mock-Luc
S-RBD+N
21
35
21
35
Days post prime vaccination

Fig. 9

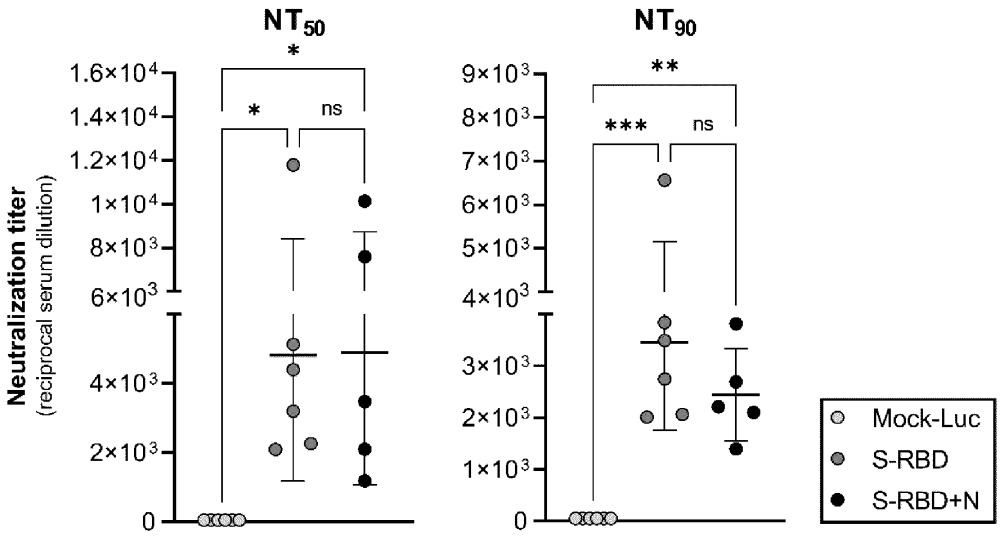

NT50
NT90
Neutralization titer
(reciprocal serum dilution)
1.6×10⁴
1.4×10⁴
1.2×10⁴
1×10⁴
8×10³
6×10³
4×10³
2×10³
0
9×10³
8×10³
7×10³
6×10³
5×10³
4×10³
3×10³
2×10³
1×10³
*
**
***
ns
Mock-Luc
S-RBD
S-RBD+N

Fig. 10

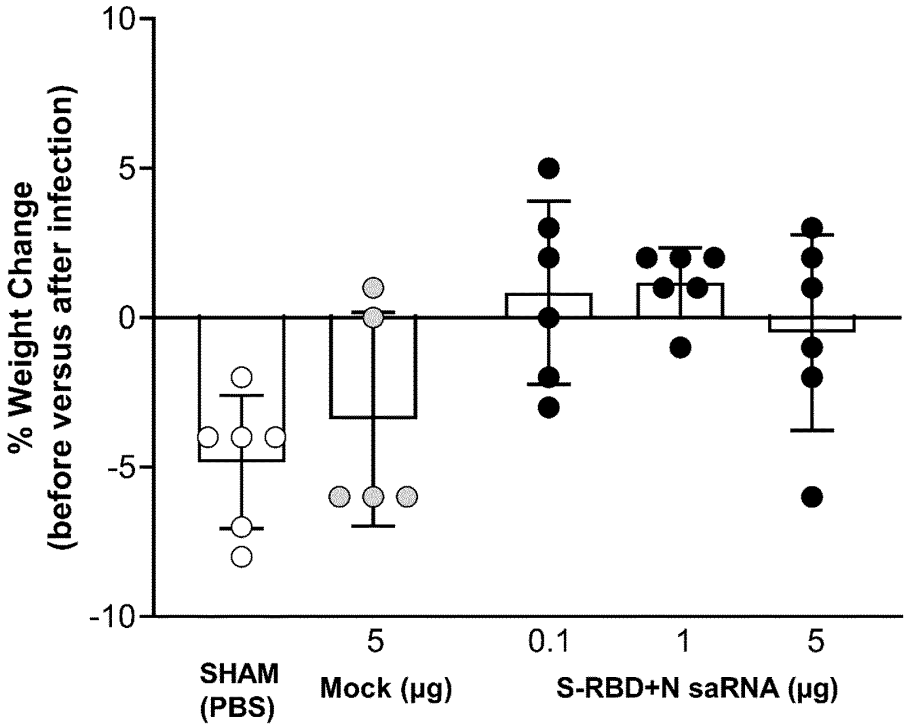

10
5
0
-5
-10
% Weight Change
(before versus after infection)
SHAM
(PBS)
5
Mock (µg)
0.1
1
5
S-RBD+N saRNA (µg)

Fig. 11

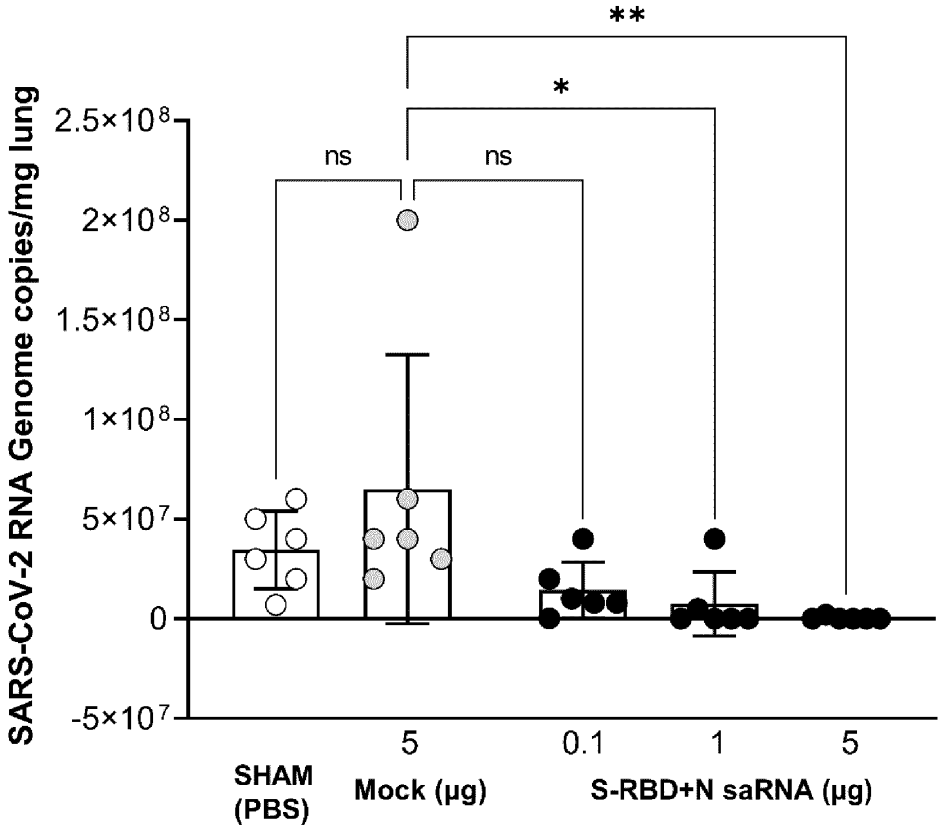

**
*
ns
ns
SARS-CoV-2 RNA Genome copies/mg lung
2.5×10^8
2×10^8
1.5×10^8
1×10^8
5×10^7
0
-5×10^7
5
0.1
1
5
SHAM (PBS)
Mock (µg)
S-RBD+N saRNA (µg)

Fig. 12

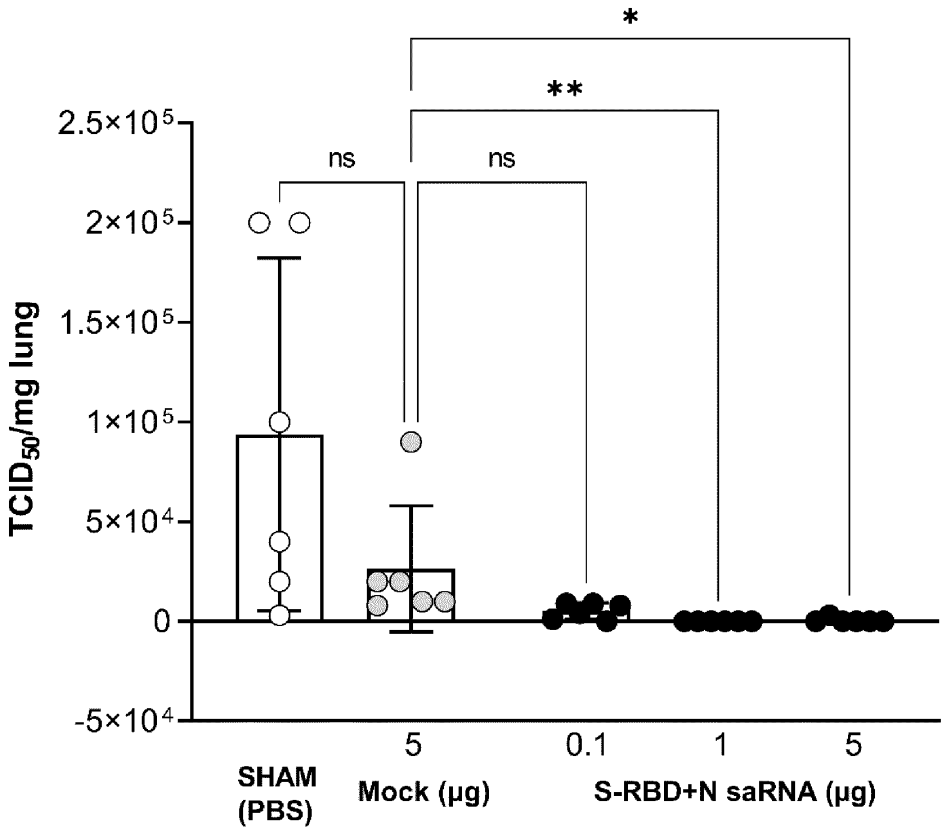

*
**
ns
ns
2.5×10^5
2×10^5
1.5×10^5
1×10^5
5×10^4
0
-5×10^4
TCID50/mg lung
5
0.1
1
5
SHAM (PBS)
Mock (µg)
S-RBD+N saRNA (µg)

Fig. 13

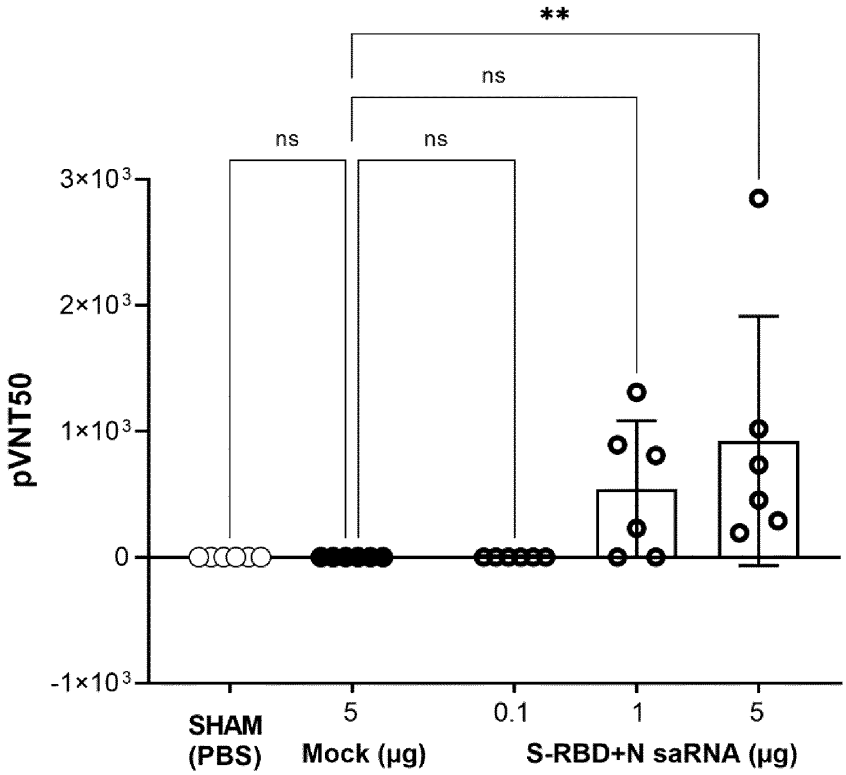

**
ns
ns
ns
3×10³
2×10³
1×10³
0
-1×10³
pVNT50
SHAM (PBS)
5
Mock (µg)
0.1
1
5
S-RBD+N saRNA (µg)

Fig. 14

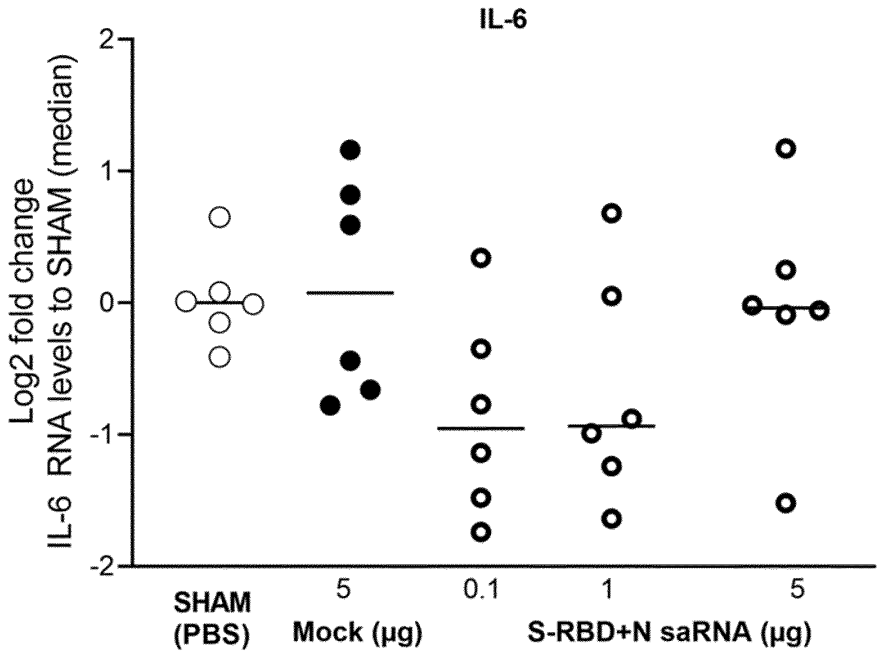

IL-6
Log2 fold change IL-6 RNA levels to SHAM (median)
2
1
0
-1
-2
SHAM (PBS)
5
Mock (µg)
0.1
1
5
S-RBD+N saRNA (µg)

Fig. 15

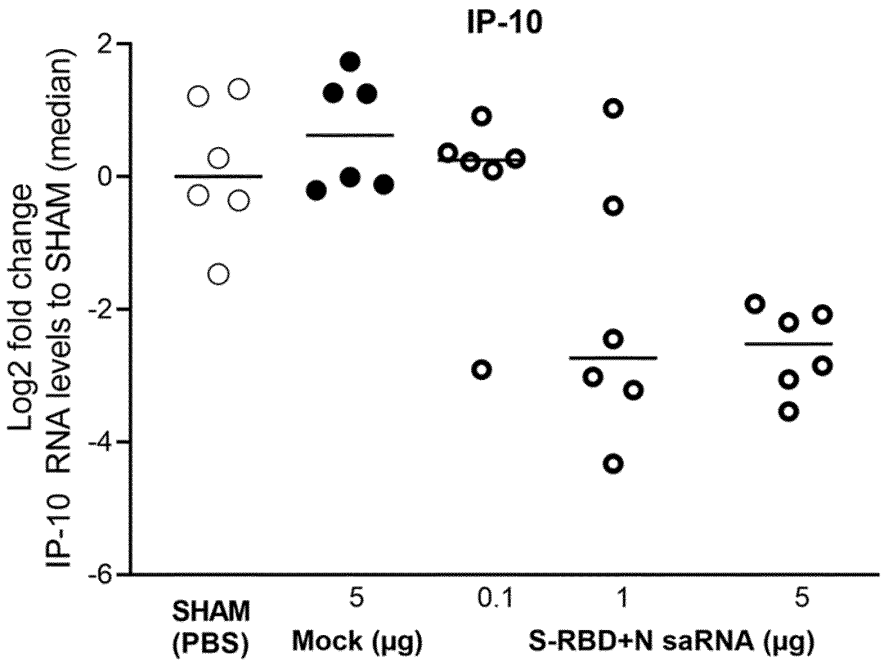

IP-10
Log2 fold change
IP-10 RNA levels to SHAM (median)
2
0
-2
-4
-6
SHAM
(PBS)
5
Mock (µg)
0.1
1
5
S-RBD+N saRNA (µg)

Fig. 16

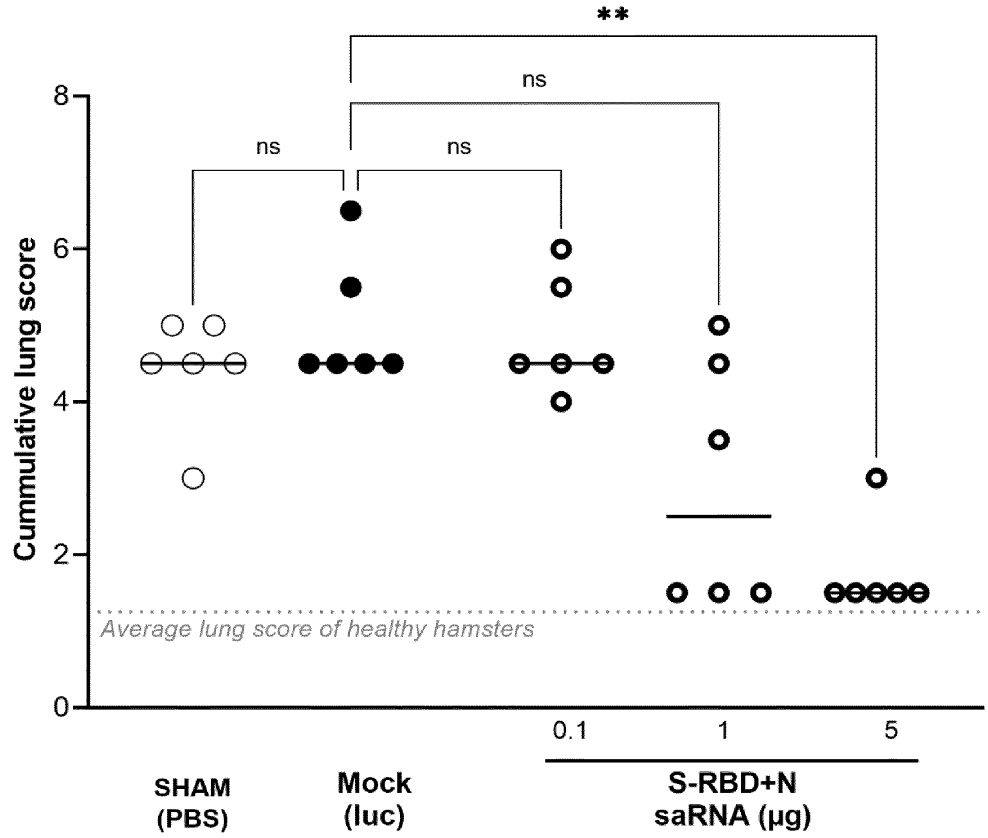

**
ns
ns
ns
8
6
4
2
0
Cummulative lung score
Average lung score of healthy hamsters
0.1
1
5
SHAM (PBS)
Mock (luc)
S-RBD+N saRNA (µg)

Fig. 17

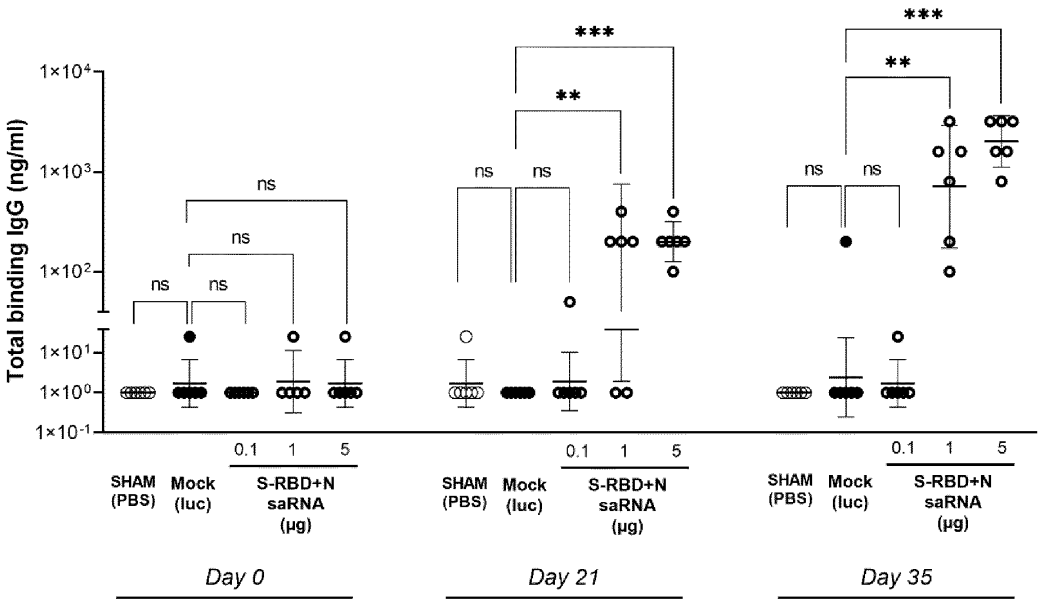

***
**
***
**
ns
Total binding IgG (ng/ml)
1×10⁴
1×10³
1×10²
1×10¹
1×10⁰
1×10⁻¹
0.1
1
5
SHAM (PBS)
Mock (luc)
S-RBD+N saRNA (µg)
Day 0
Day 21
Day 35

Fig. 18

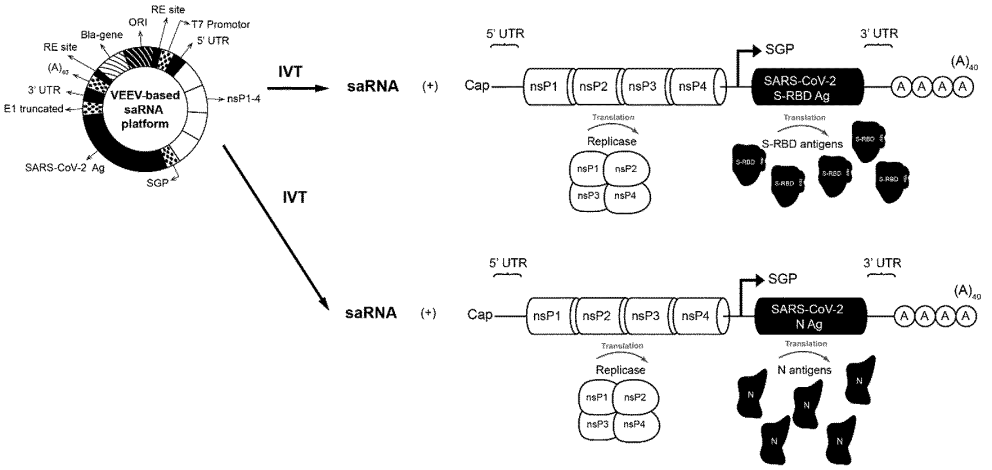

RE site
ORI
T7 Promotor
Bla-gene
5' UTR
RE site
(A)40
3' UTR
E1 truncated
VEEV-based saRNA platform
nsP1-4
SARS-CoV-2 Ag
SGP
IVT
saRNA
(+)
5' UTR
3' UTR
SGP
Cap
nsP1
nsP2
nsP3
nsP4
SARS-CoV-2 S-RBD Ag
(A)40
Translation
Replicase
S-RBD antigens
IVT
saRNA
(+)
SARS-CoV-2 N Ag
N antigens

Fig. 19

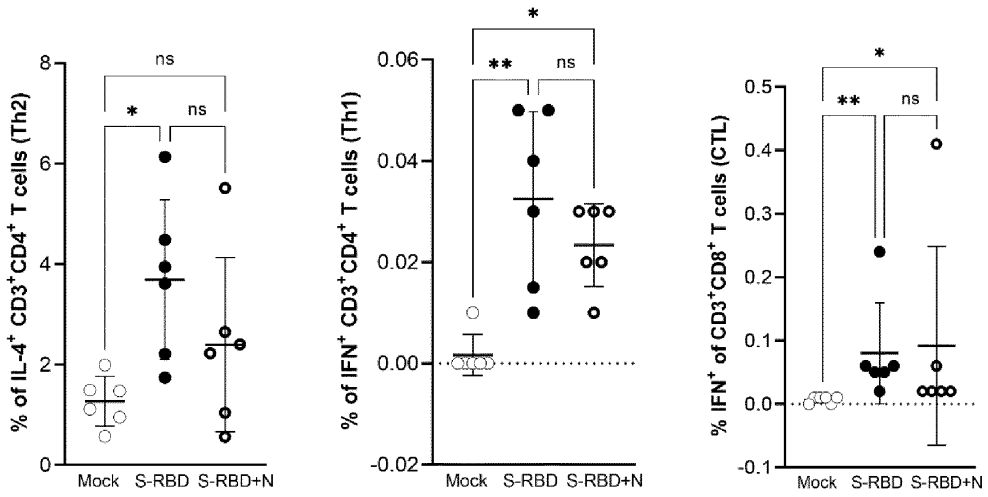

% of IL-4+ CD3+CD4+ T cells (Th2)
% of IFN+ CD3+CD4+ T cells (Th1)
% IFN+ of CD3+CD8+ T cells (CTL)
Mock
S-RBD
S-RBD+N
ns
*
**

Fig. 20