

Supplementary Figure S1. Graphical representation of the study scheme. Nursing home staff and residents underwent the same vaccination protocol where the baseline blood sample was collected at the moment of first dose administration followed by second injection two weeks later. After another two weeks blood sample was obtained. For a small subset of residents ($n=20$) another blood draw was performed three months post second dose administration. Created with BioRender.com.

Supplementary Figure S2. COVID-19 serostatus before vaccination. **A)** Pre-vaccination infection status and response to vaccination determined by quantification of anti-S1 IgG and/or anti-NCP IgG levels and applying manufacturer-recommended cut-off values. Percentages refer to the total number of positives among the NHS or NHR groups. **B)** Pre-vaccination anti-S1 IgG and anti-NCP IgG levels among the infected NHS and NHR. * - P value = 0,034. **C-D)** Relation between pre-vaccination anti-S1 IgG and anti-NCP IgG in individual study participants.

Supplementary Figure S3. Impact of age and sex on pseudovirus neutralization. **A)** Mean pseudovirus neutralization titers in serum from NHS or NHR collected 2 weeks post administration of the second vaccination dose. **B)** Graph represents correlation between age and pseudovirus neutralization titers in serum of non-infected NHS or NHR. . * - P value = 0.041, *** - P value = 0.0006, **** - P value <0.0001.

Supplementary Figure S4. Correlation between pseudovirus neutralization titers and anti-S1 IgG levels measured in serum 2 weeks after administration of second dose of the vaccine.

Supplementary Figure S5. Gating strategy used for flow cytometry data analysis.

Supplementary Figure S6. Correlation between IFN γ secretion from PBMCs stimulated with SARS-CoV-2 spike peptide pool and pseudovirus neutralization **(A)** or anti-S1 IgG levels **(B)** measured three months after administration of the second dose of the vaccine.

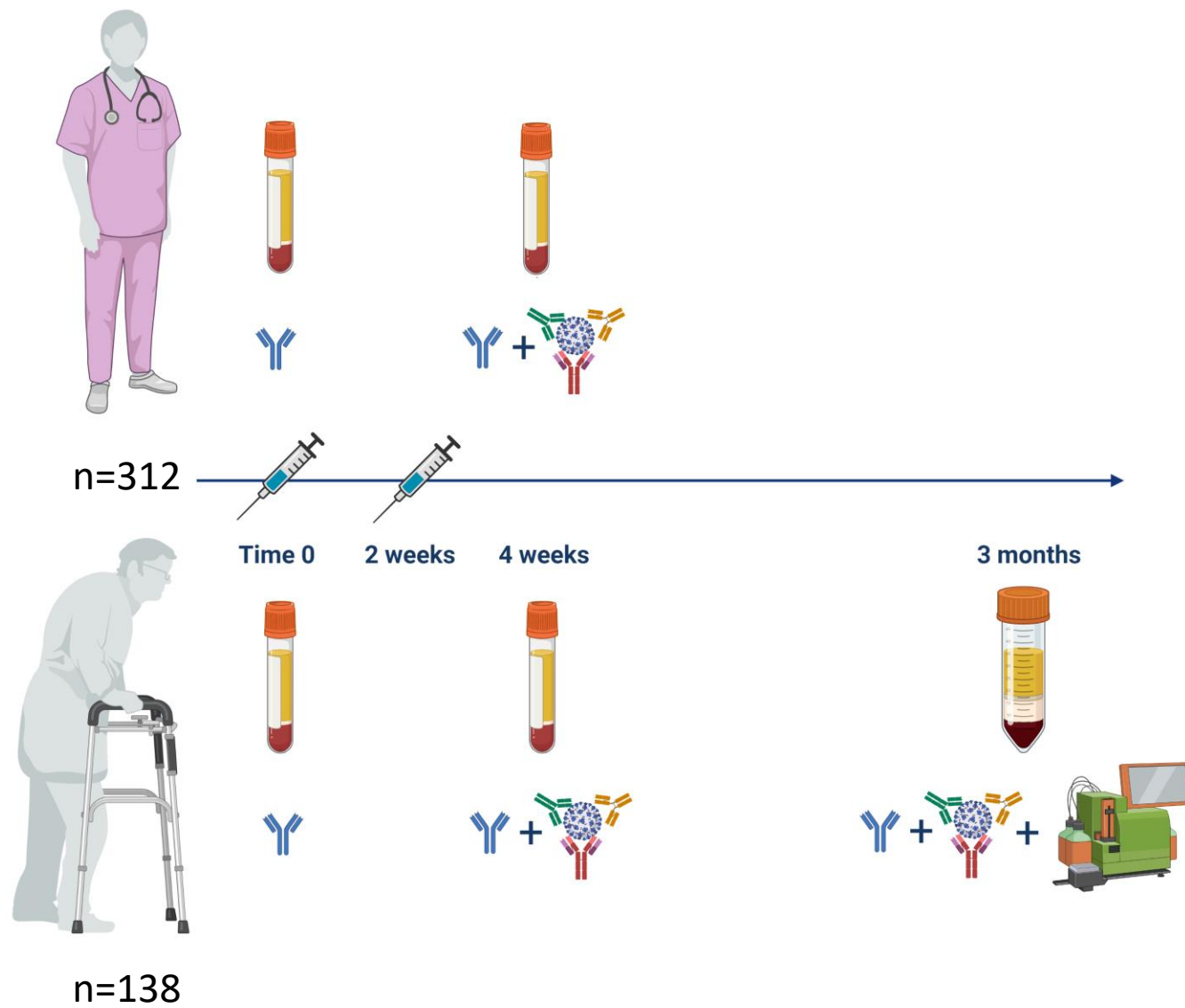
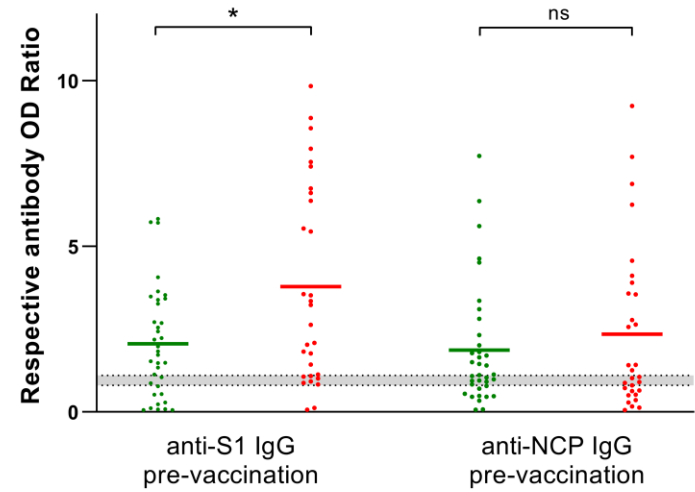


Figure S1.

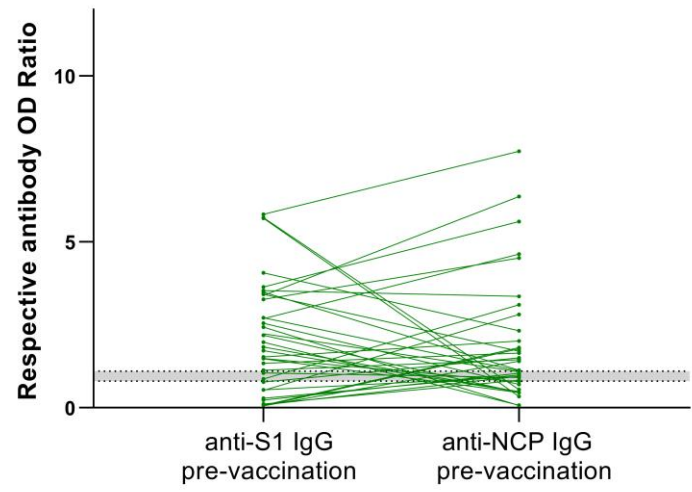
A

	Number of participants	Median age (years)	anti-S IgG positive before vaccination	anti-NCP IgG positive before vaccination	double: anti-S/anti-N IgG positive before vaccination	positive in either of the assays before vaccination	anti-S IgG positive two weeks after second dose of vaccination
NHS	312	50,8	26 (8,3%)	26 (8,3%)	16 (5,1%)	36 (11,5%)	308 (98,7%)
NHR	138	88,9	28 (20,3%)	20 (14,5%)	19 (13,8%)	30 (21,7%)	122 (88,4%)

B



C



D

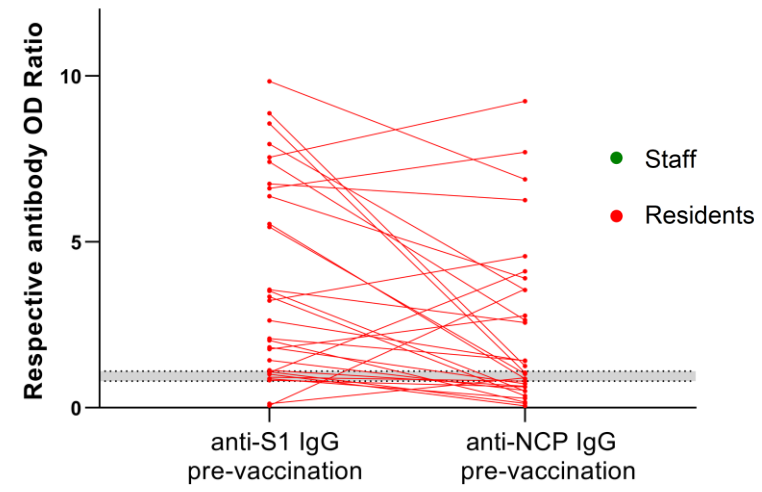


Figure S2.

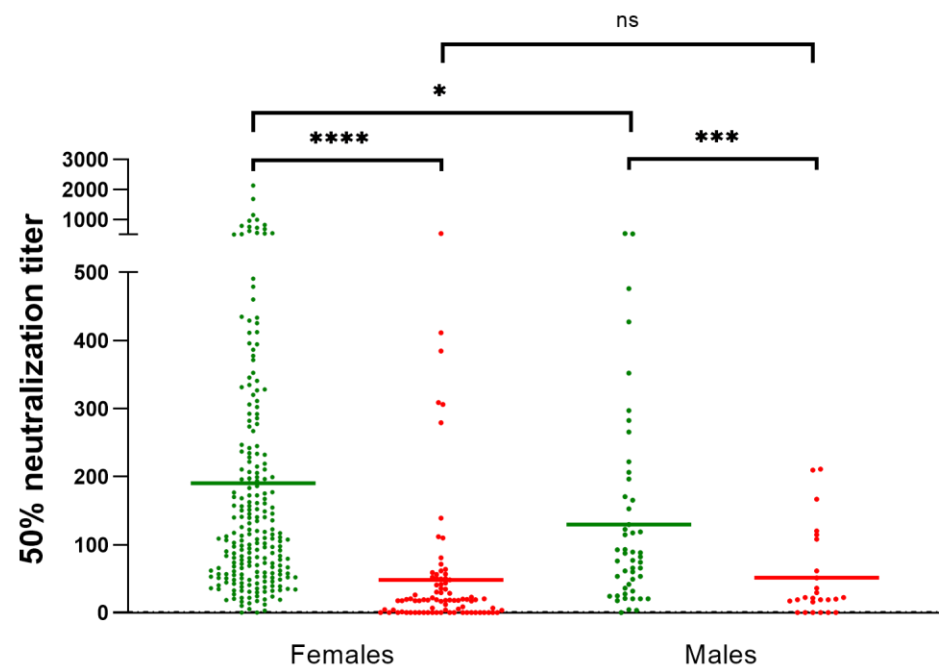
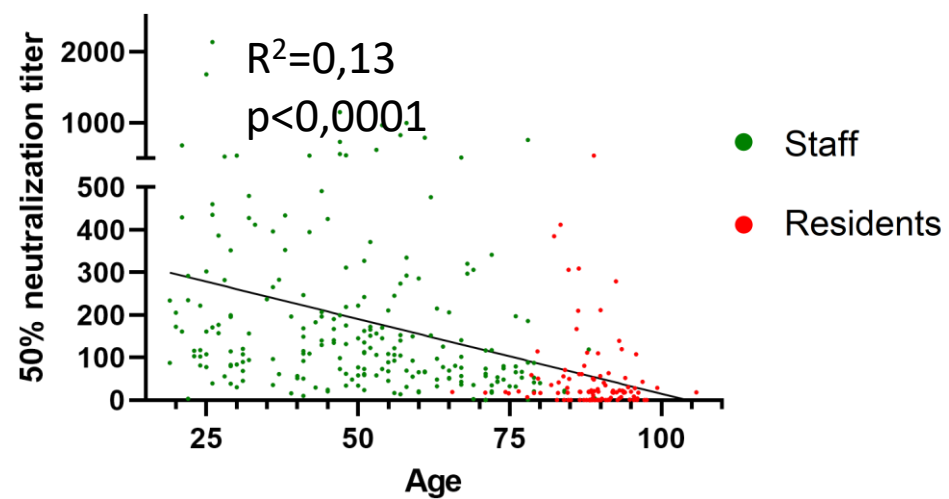
A**B**

Figure S3.

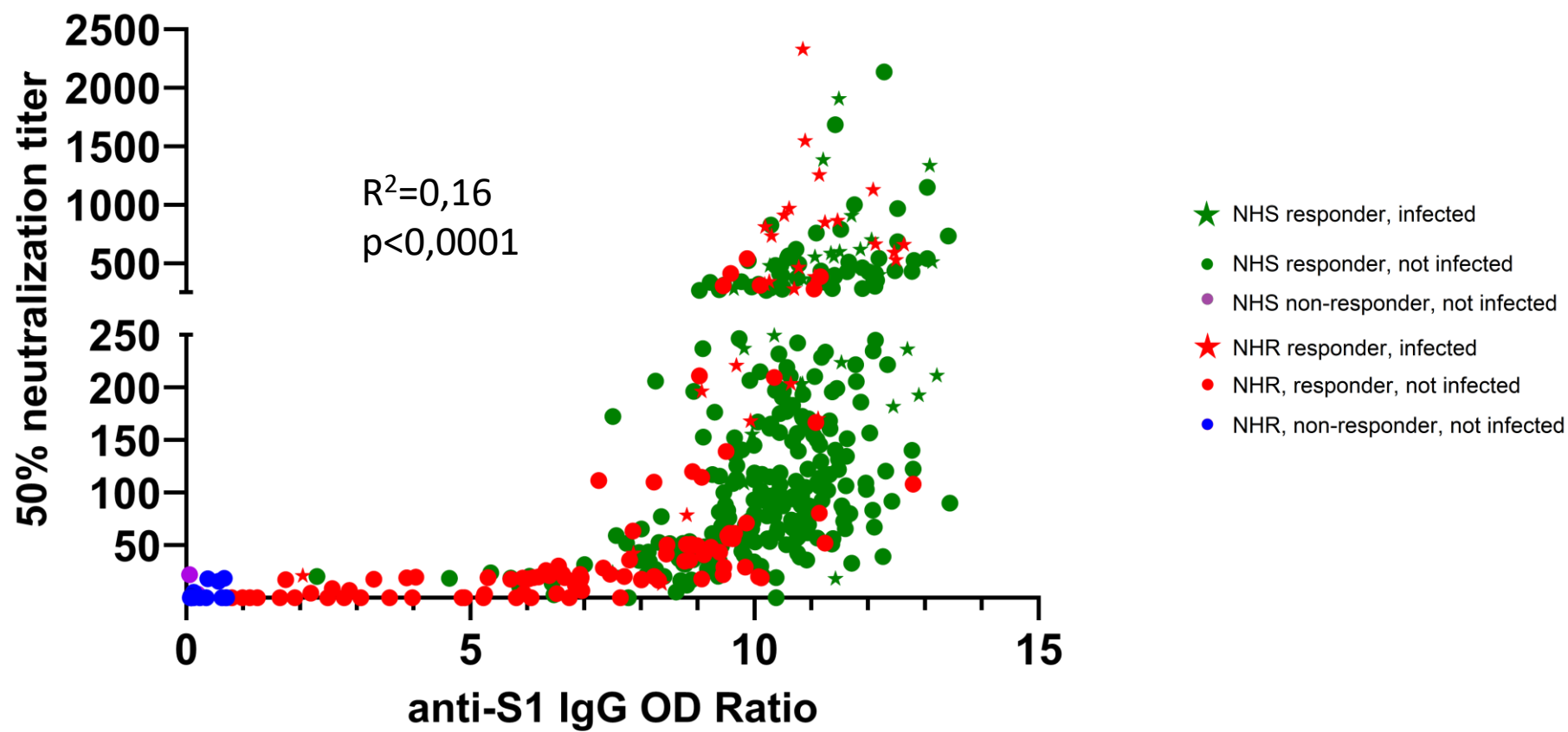


Figure S4.

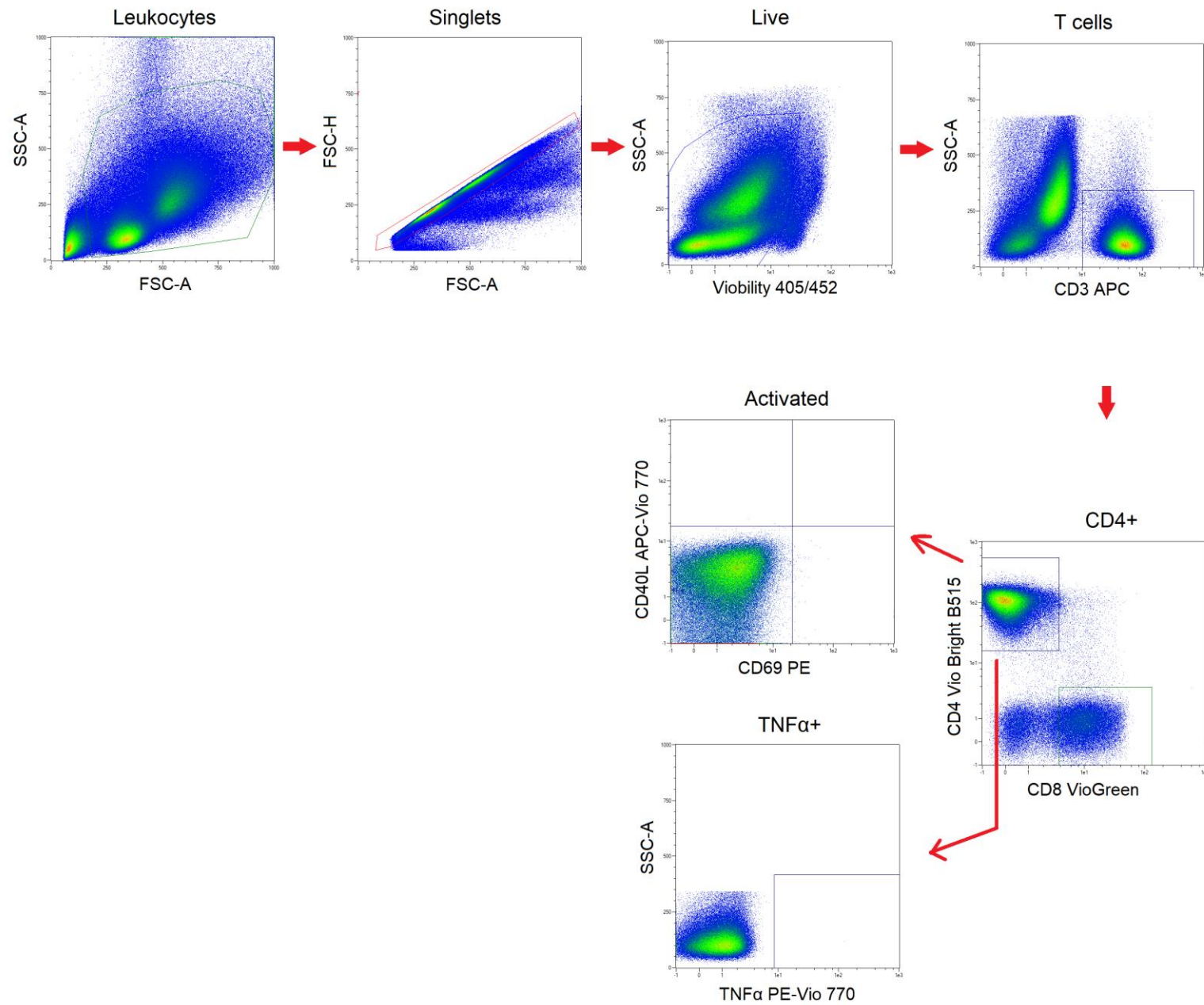
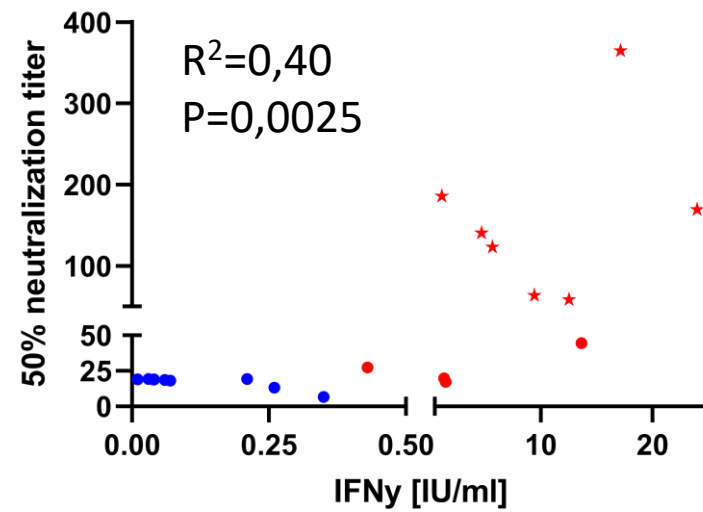
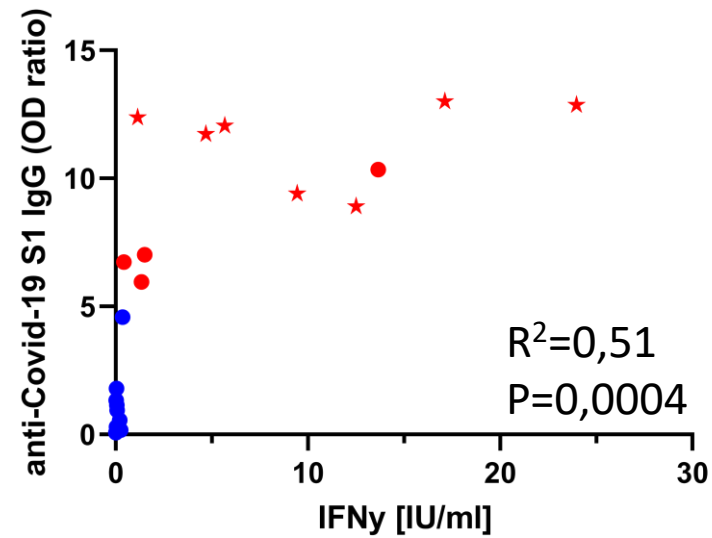


Figure S5.

A**B**

- ★ NHR responder, infected
- NHR responder, not infected
- NHR non-responder, not infected

Figure S6.