

Supplementary table 1. Presence of S-specific antibodies after SARS-CoV-2 vaccination in LT recipients

	<i>ChAdOx1 nCoV19 (n=21)</i>	<i>mRNA-1273 (n=430)</i>	<i>BNT162b2 (n=25)</i>	<i>p-value</i>
<i>Total Ig SARS-CoV-2 (n, %)</i>				0.089 ⁺
<i>Positive</i>	13 (61.9)	345 (80.2)	18 (72.0)	
<i>IgM SARS-CoV-2 (n, %)</i>				0.108 [§]
<i>Negative</i>	17 (81.0)	329 (76.5)	20 (80.0)	
<i>Positive</i>	1 (4.8)	62 (14.4)	1 (4.0)	
<i>Unknown</i>	1 (4.8)	30 (7.0)	4 (16.0)	
<i>Borderline</i>	2 (9.5)	9 (2.1)	-	
<i>IgG anti-spike SARS-COV-2 levels (median [IQR])</i>	14.30 [0.00 - 136.00]	650.50 [71.30 – 1787.50]	99.80 [20.40 - 304.00]	<0.001 [‡]

[‡]p-value based on non-parametric test (Kruskal-Wallis) test; ⁺p-value based on Chi-square test; [§]p-value based on Fisher's Exact test

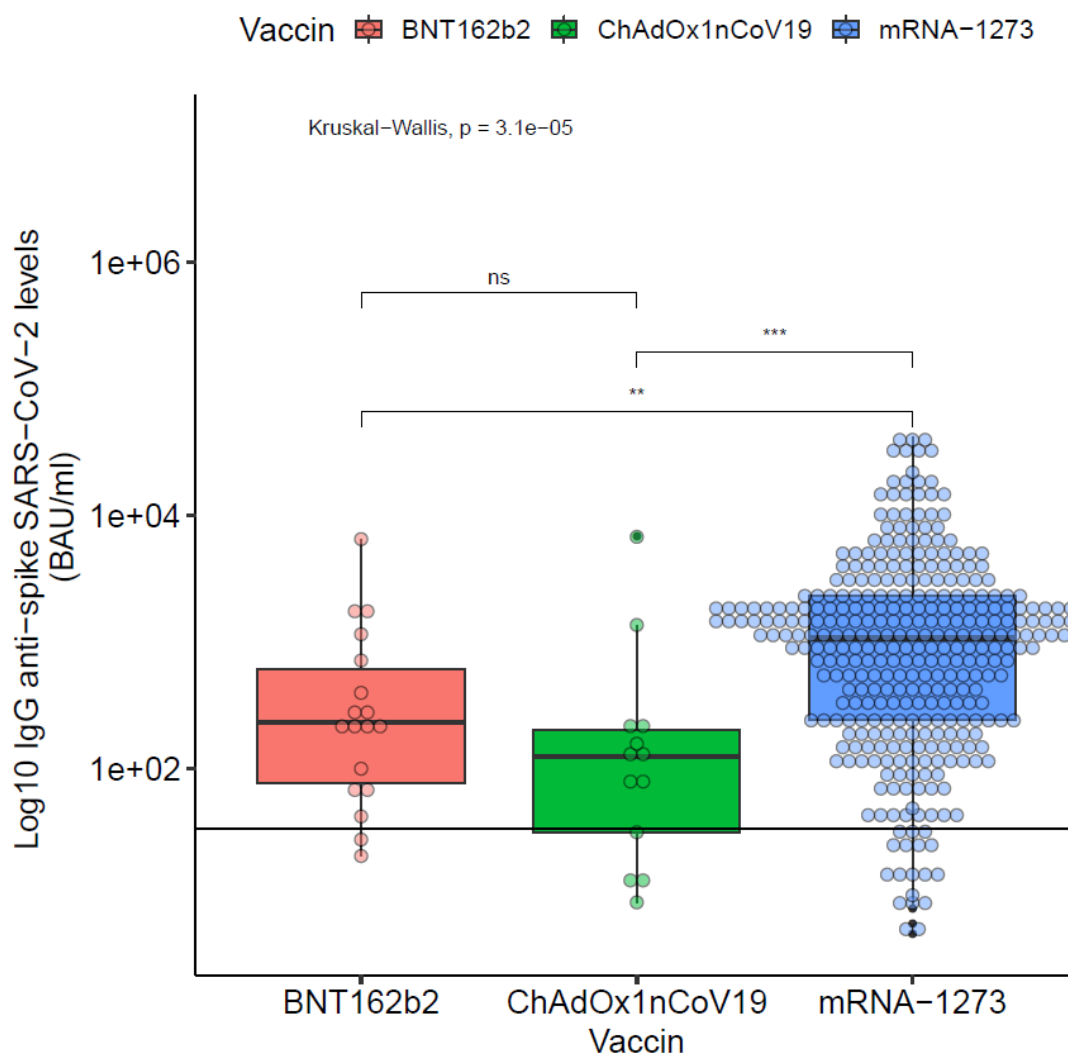
Supplementary table 2. Multivariable linear regression results

	Model TAC (n=275)	95%-CI	p-value	Model MPA (n=162)	95%-CI	p-value
Constant	2.87	0.57 – 5.18	0.015*	3.85	-0.17 – 7.86	0.061
MPA trough level, mg/L	-	-	-	-0.20	-0.37 – -0.035	0.019*
TAC trough level, mcg/L	-0.051	-0.11 – 0.0095	0.097	-	-	-
Recipient age, years	-0.021	-0.056 – 0.014	0.23	-0.066	-0.13 – -0.0045	0.035*
Kidney function, ml/min/1.73m ²	-0.0024	-0.029 – 0.025	0.86	-0.044	-0.098 – 0.011	0.12
Time between vaccination and transplantation, years	0.019	0.0039 – 0.035	0.014*	0.051	0.023 – 0.079	<0.001*
Type of vaccination						
ChAdOx1 nCoV19	-1.06	-1.74 – -0.38	0.0025*	-0.75	-2.04 – 0.54	0.25
mRNA-1273	0.67	0.17 – 1.17	0.0088*	0.34	-0.49 – 1.19	0.42
Interaction between kidney function and age	0.00023	-0.00022 – 0.00069	0.32	0.0011	0.00016 – 0.0019	0.021*

Abbreviations: CI, confidence interval; TAC, tacrolimus; MPA, mycophenolic acid; *indicates statistical significance

Two multivariable linear regression models were fitted, investigating the association between the antibody response on SARS-CoV-2 vaccination and the immunosuppressive trough levels of MPA or tacrolimus in the subset of patients who received the specific immunosuppressive agent. A total of 275 trough levels of LT recipients receiving solely tacrolimus and a total of 162 trough levels of LT recipients receiving mycophenolic acid were included in the models. Variables included in the model were independently associated with an effect on the IgG SARS-CoV-2 anti-spike antibody response. To take into account that the IgG SARS-CoV-2 anti-spike antibody response may not only be independently associated with kidney function and the recipient age, but that the effect of kidney function may change across ages, the model included the product (=interaction) of the kidney function and recipient age as independent variable.

Supplementary figure 1. SARS-CoV-2 specific antibody response in seroconverted LT recipients



Log-transformed IgG SARS-CoV-2 anti-spike antibody levels in seroconverted LT recipients. Data is presented as box plots with individual values. The cut-off of 33.8 BAU/ml is considered reactive following the manufacturer's instructions (solid black line). Differences tested with Kruskal-wallis and wilcoxon signed rank test. Median anti-spike SARS-CoV-2 levels: mRNA-1273 vaccine 1070 BAU/mL, IQR 242 - 2320 BAU/mL; BNT162b2 mRNA vaccine 231.50 BAU/mL, IQR 77.30 - 633.75 BAU/mL; ChAdOx1 nCoV19 vector vaccine 124 BAU/mL, IQR 31.40 - 203.00 BAU/mL