

SUPPLEMENTARY

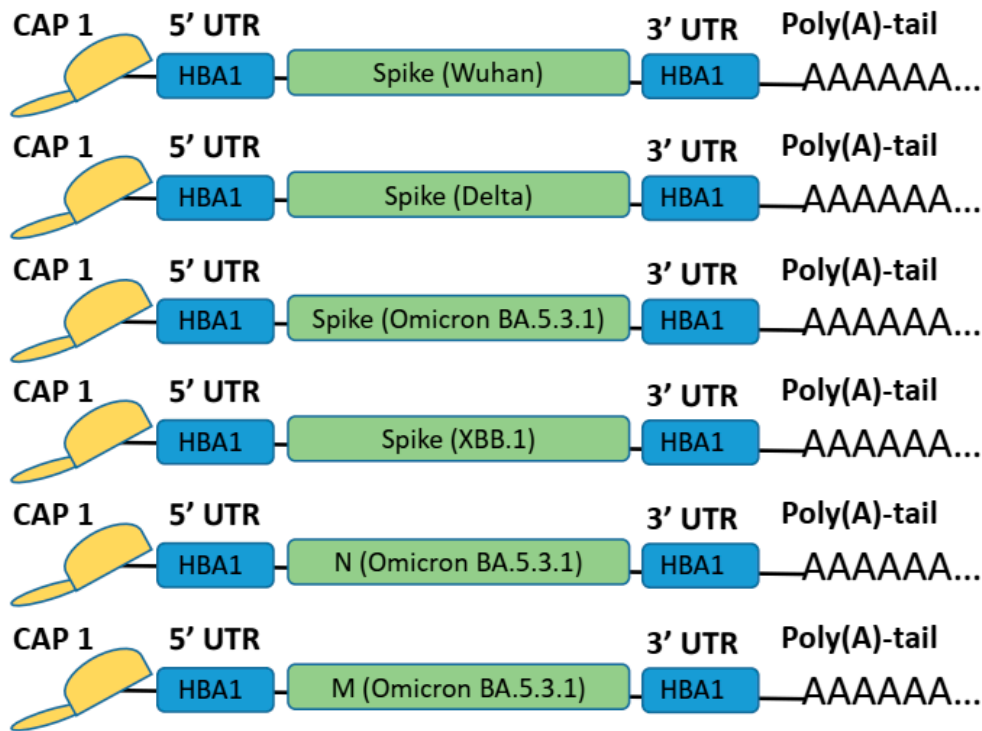


Figure S1. Schematic representation of mRNAs, encoding SARS-CoV-2 structural proteins using in this study.

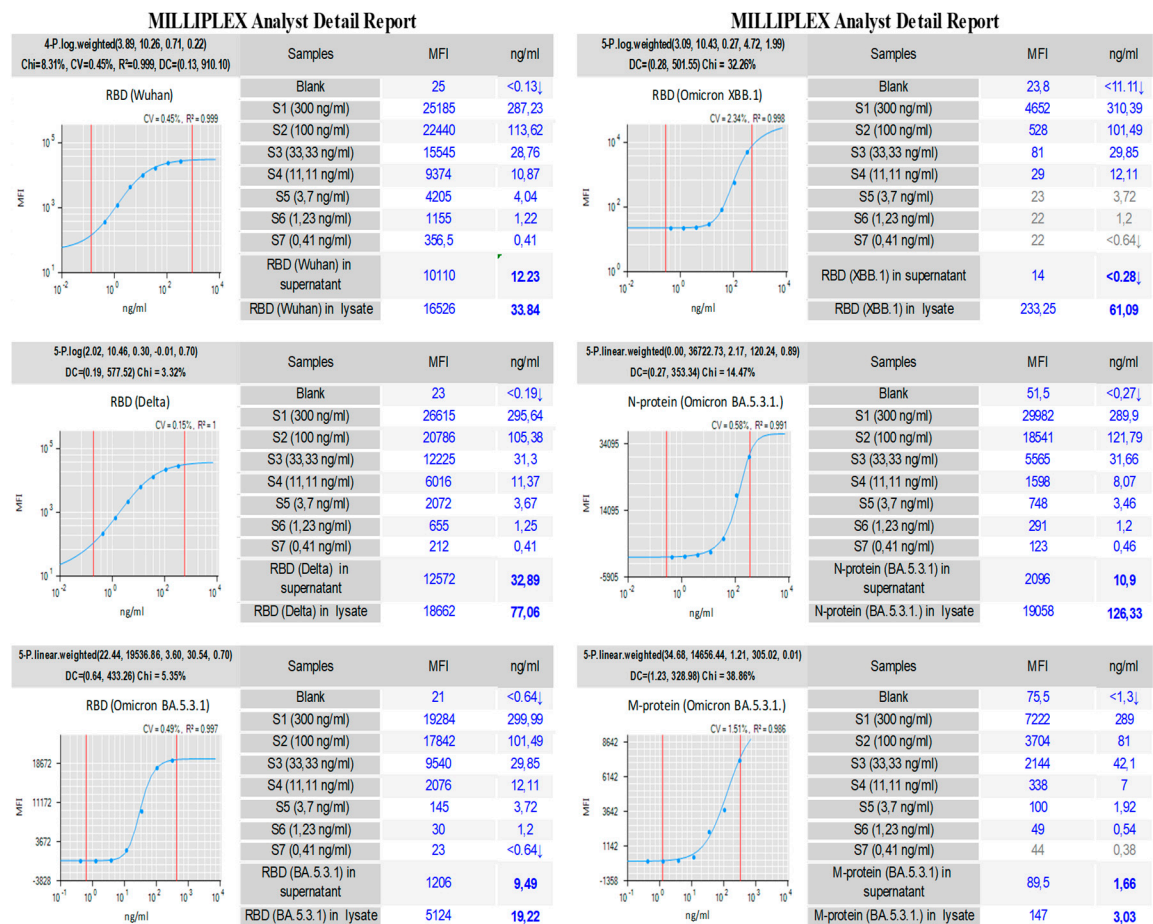


Figure S2. mRNAs translation check on HEK293T cells. Bead based immunoassay results. Median fluorescent intensity (MFI) was measured on a MAGPIX instrument and converted in ng/ml. For each identified analyte (RBD, N or M), the MFI-value was converted to ng/mL by interpolation from a 5-parameter logistic (5-PL) curve of reference standard using the MILLIPLEX® Analyst 5.1 software (The Life Science/Merck KGaA).

Table S1. Physicochemical properties of mRNA-LNP formulations.

mRNA-S-LNP												
d (nm)	PDI	Z (mV)	E%									
76	0,128	-8	92									
76	0,093	-6	83									
73	0,108	-8	84									
78	0,146	-8	92									
74	0,121	-8	92		mRNA-N-LNP				mRNA-M-LNP			
d (nm)	PDI	Z (mV)	E%		d (nm)	PDI	Z (mV)	E%	d (nm)	PDI	Z (mV)	E%
80	0,112	-7	89		70	0,104	-7	91	68	0,14	-8	92
73	0,111	-8	88		79	0,148	-8	82	70	0,13	-5	90
78	0,102	-9	84									
Mean	76	0,115	-8	88	75	0,126	-8	86	69	0,135	-7	91
SD	2,563	0,016	0,886	3,891	6,364	0,031	0,707	4,583	1,414	0,007	2,121	1,414
Median	76	0,112	-8	89	75	0,126	-8	85	69	0,135	-7	91

The diameter (d) and polydispersity index (PDI) and Zeta potential (Z) of the mRNA-LNP formulations were measured by dynamic light scattering (for d and PDI values) or by determining the electrophoretic mobility (for Z) using a Zetasizer Nano ZS instrument (Malvern Panalytical). E% – encapsulation efficiency of mRNA in lipid nanoparticles.

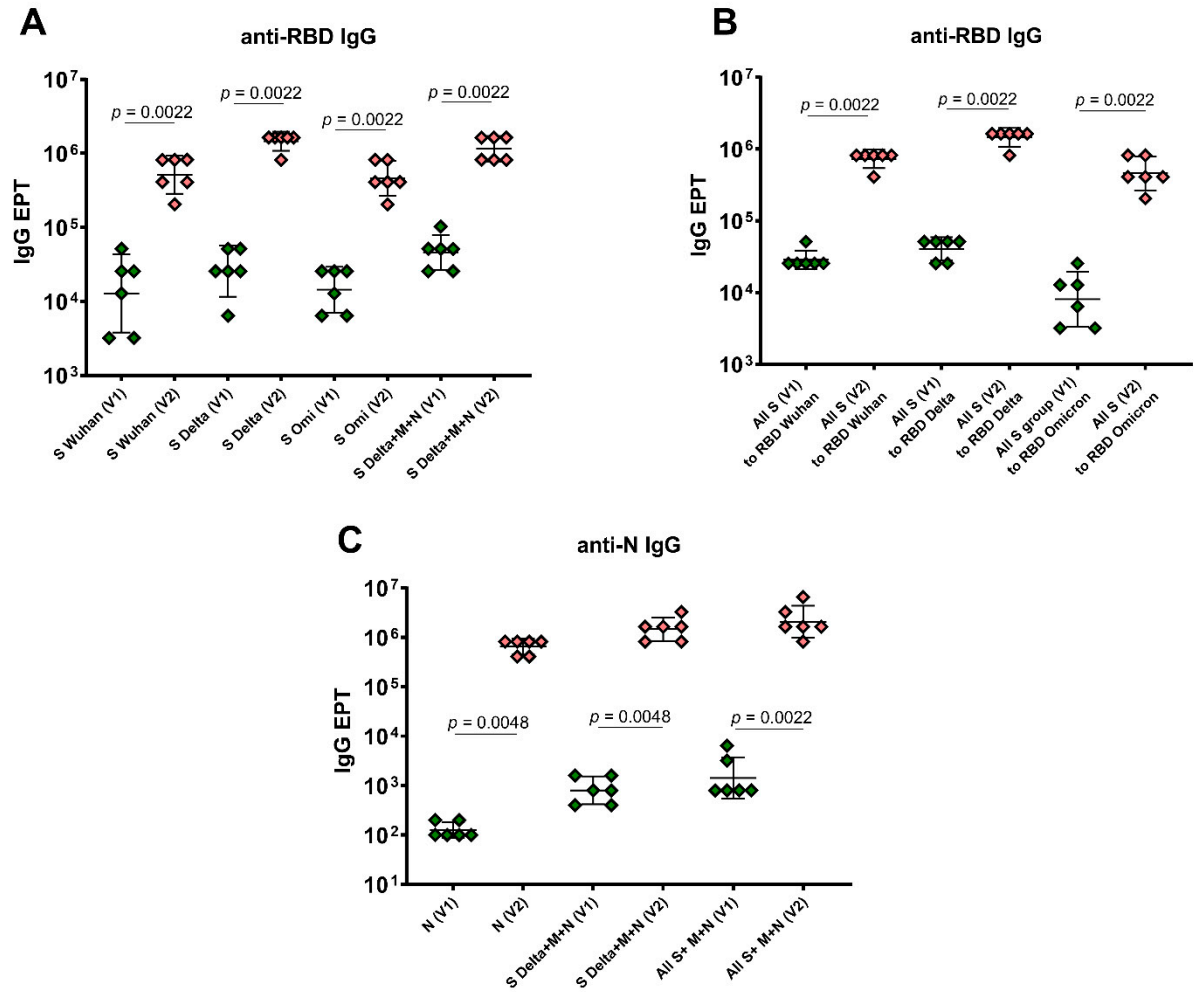


Figure S3. ELISA results for binding IgG after prime (V1) and boost (V2) vaccinations. Serum RBD-specific (A-B) and N- (C) binding IgG after prime (V1) and boost (V2) vaccinations. EPT values are represented as scatter dot plots in logarithmic scale. Lines represent geometric means with 95% confidence interval. Mann-Whitney test was used for statistical analysis.

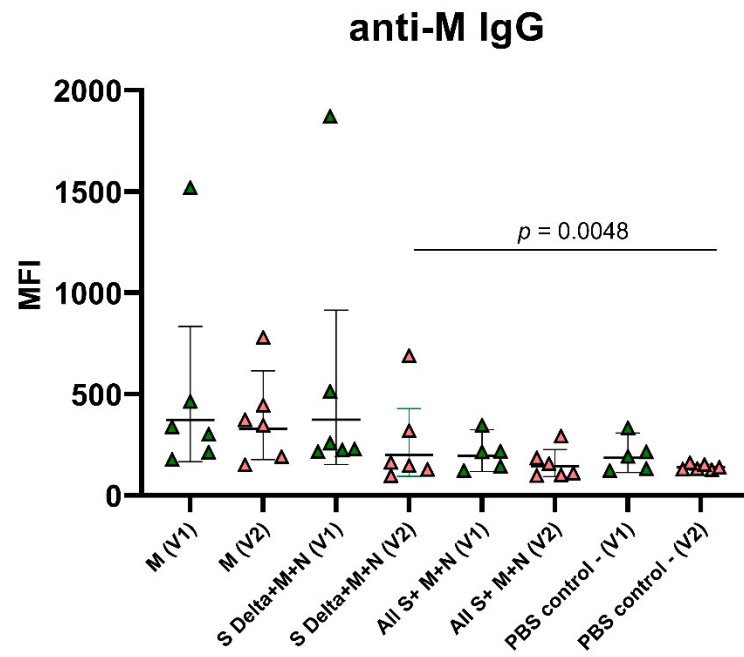


Figure S4. Bead-based immunoassay results for M-specific binding IgG after prime (V1) and boost (V2) vaccinations. MFI – median fluorescent intensity. Mann-Whitney test was used for statistical analysis.