

Supplementary Materials for

**Surface-modified measles vaccines bypass measles-immunity, boosting neutralizing antibody responses to Omicron and ancestral strains**

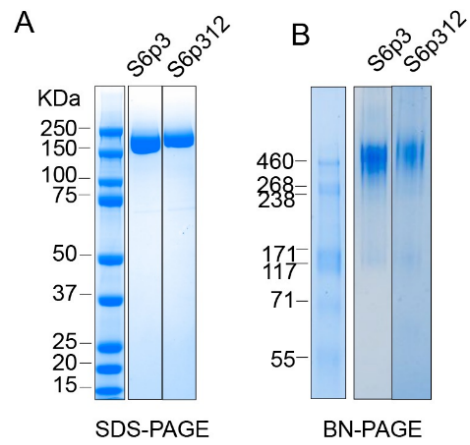
Miguel Á. Muñoz-Alía et al.

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**This PDF file includes:**

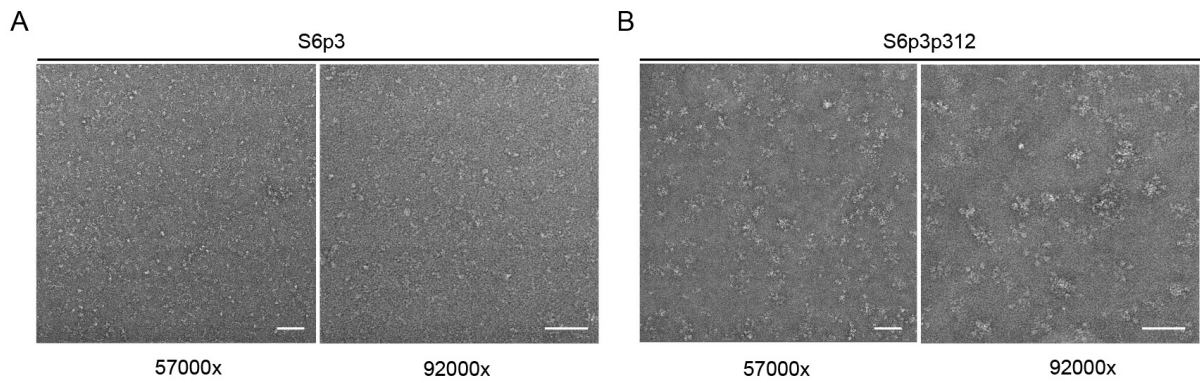
Figs. S1 to S5

**Fig. S1.**



**Related to Figure 2.** (A) SDS-PAGE of the purified proteins. Protein (1  $\mu$ g) was separated by SDS-PAGE (4-12% Bis-Tris gel) electrophoresis, followed by Coomassie staining. (B) BN-Native gel analysis of the purified proteins. Protein (1  $\mu$ g) was separated by BN-Native electrophoresis (4-16% Bis-Tris), followed by Coomassie staining.

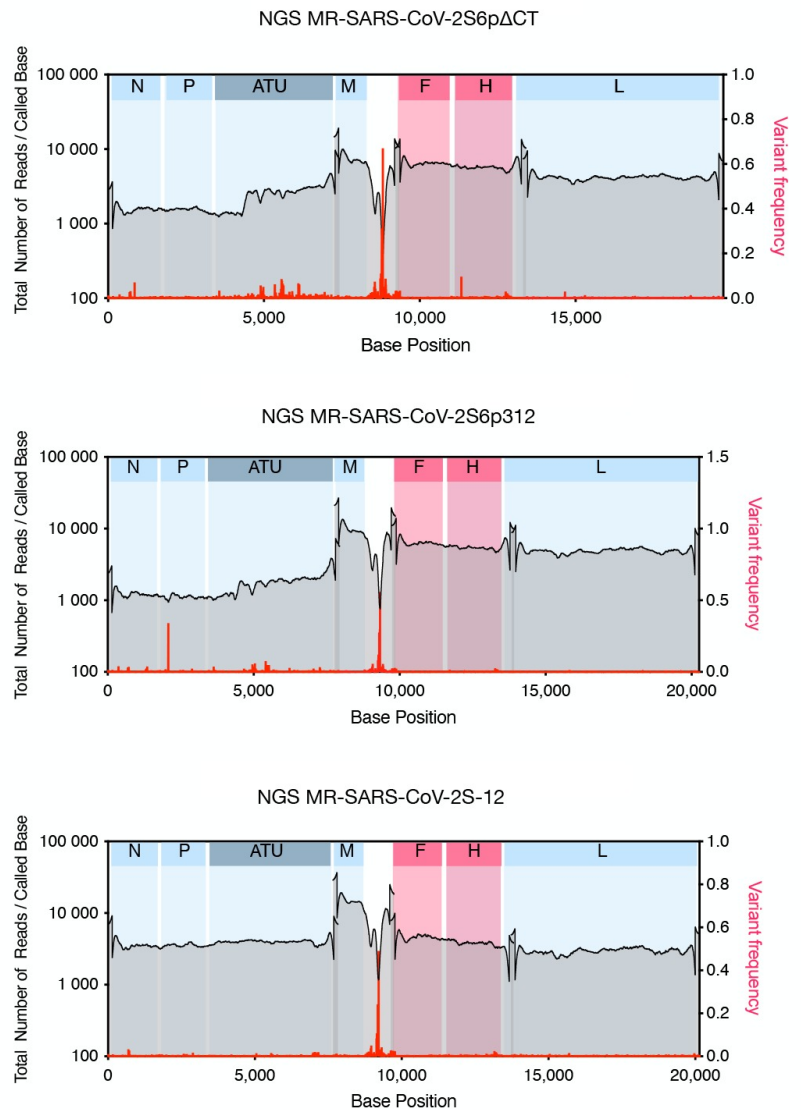
**Fig. S2.**



**Related to Figure 2.** Representative electron micrographs of negatively stained SARS-CoV-2S6p3 (A) and SARS-CoV-2S6p312 (B). Images were collected by Talos L120C 120 kV TEM with a magnification of 57kx and 92kx. Scales bars, 100nm.

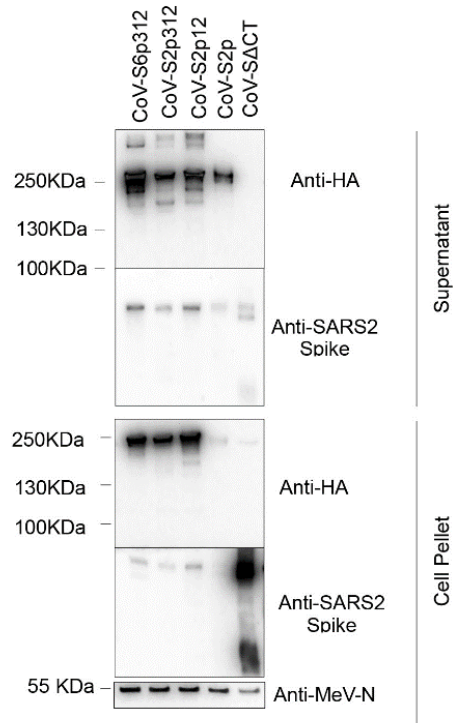
**Fig. S3.**

Virus	Gene	Nucleotide Mutation	Amino acid substitution
MR-SARS-CoV-S6pΔCT)P	ATU	t5565c	Y707H
		t5579c	syn
		t5626c	L727P
		t5701c	L752P
		t5712c	Y756H
		t5721c/t5722c	F759P
		t5738c	Syn
		t5746c	L767P
		t5811c	Y789H
		t5825c	syn
		t5827c	I794T
		t5835c	F797L
		t5844c	F800L
		t5849c	syn
		t5850c	F802L
		t5860c	I805T
		t5861c	syn
t5873c	syn		
t5911c	L822P		
t6108c	F888L		
t6138c	F898L		
del7140	Frameshift		
H	c11335a	syn	
MR-SARS-CoV-	ATU	c6175t	A890V
MR-SARS-	N	t398c	syn
		t411c	syn
		t467c	syn



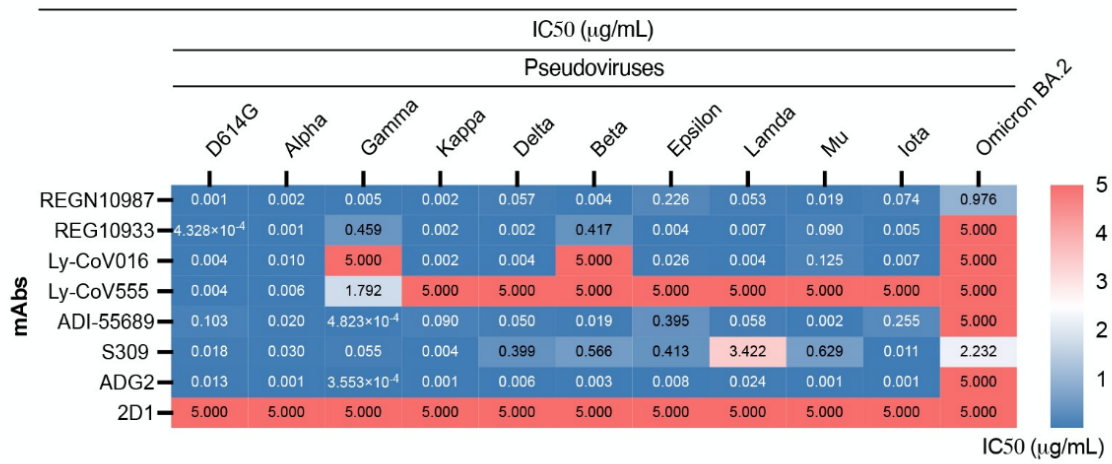
**Sequence divergence of rescued viruses from cloned cDNA.** Shown are rescued viruses in which nucleotide mutations were found. The genome coverage and allelic frequency of from Next-Generation Sequencing is also shown. Blue areas represent viral coding sequences, while white areas indicate intergenic regions and untranscribed terminal regions of the genome.

**FIG S4.**



**Related to Figure 3.** Expression of SARS-CoV-2 spike-based constructs from the rMeV-MR vector. Vero cell lysates and supernatants were analyzed by western blotting two days after infection with the various spike-based measles vector constructs at an MOI of 0.03. The antibodies used for immunodetection as well as the molecular weight of a standard are indicated.

FIG S5.



Related to Figure 6. Pseudovirus neutralization assay of commercial mAbs against SARS-CoV-2 variants. Half-maximal inhibitory concentration (IC50) values calculated from neutralization curves are plotted. 2D1 antibody was used as negative control.