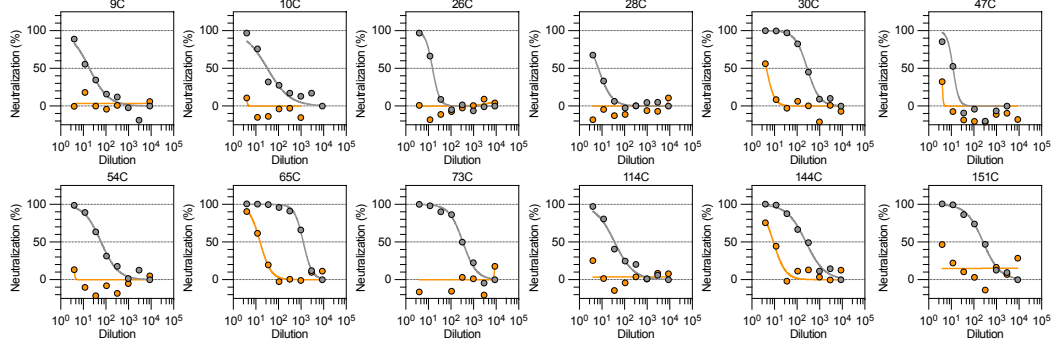
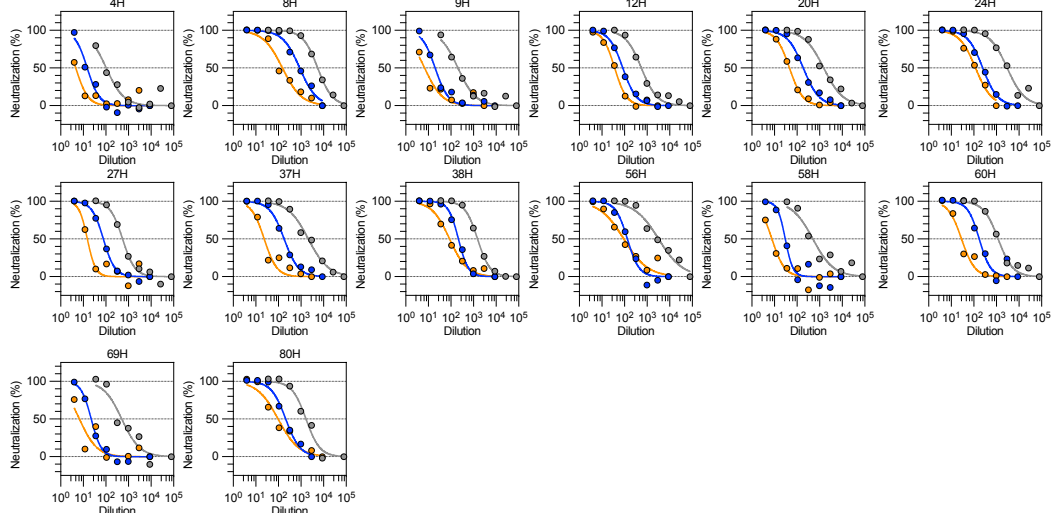
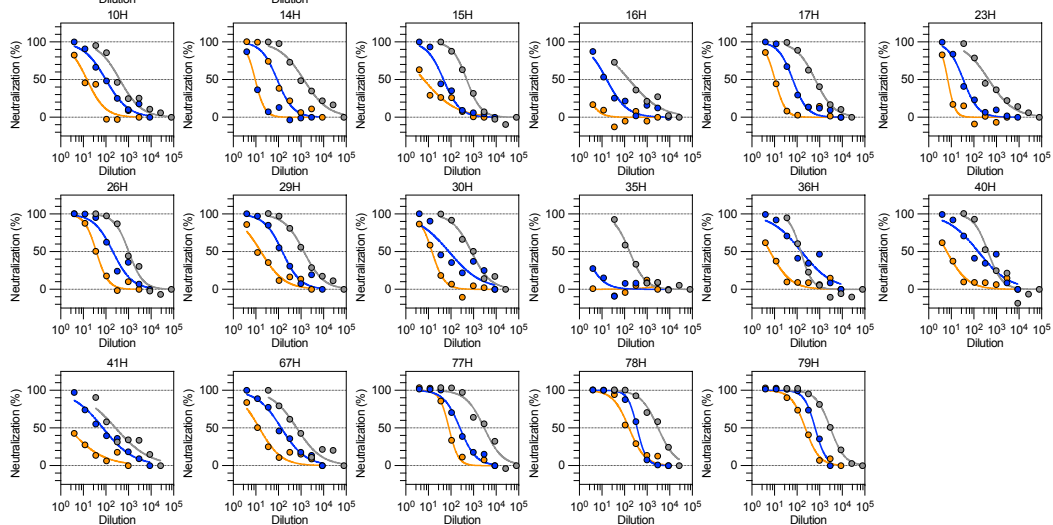
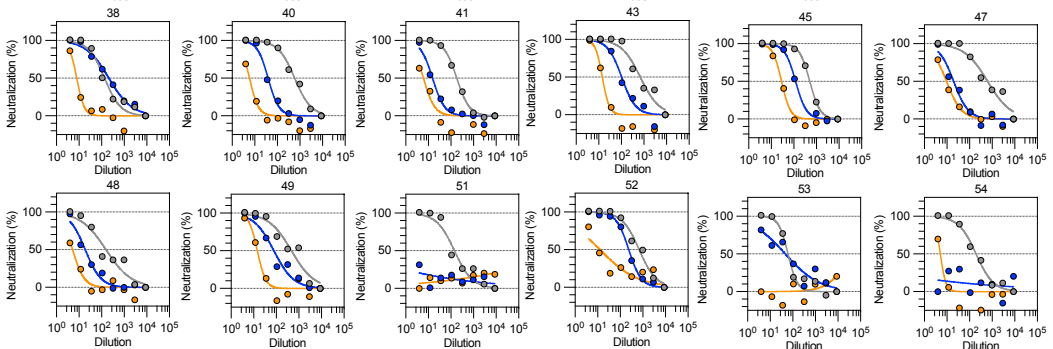
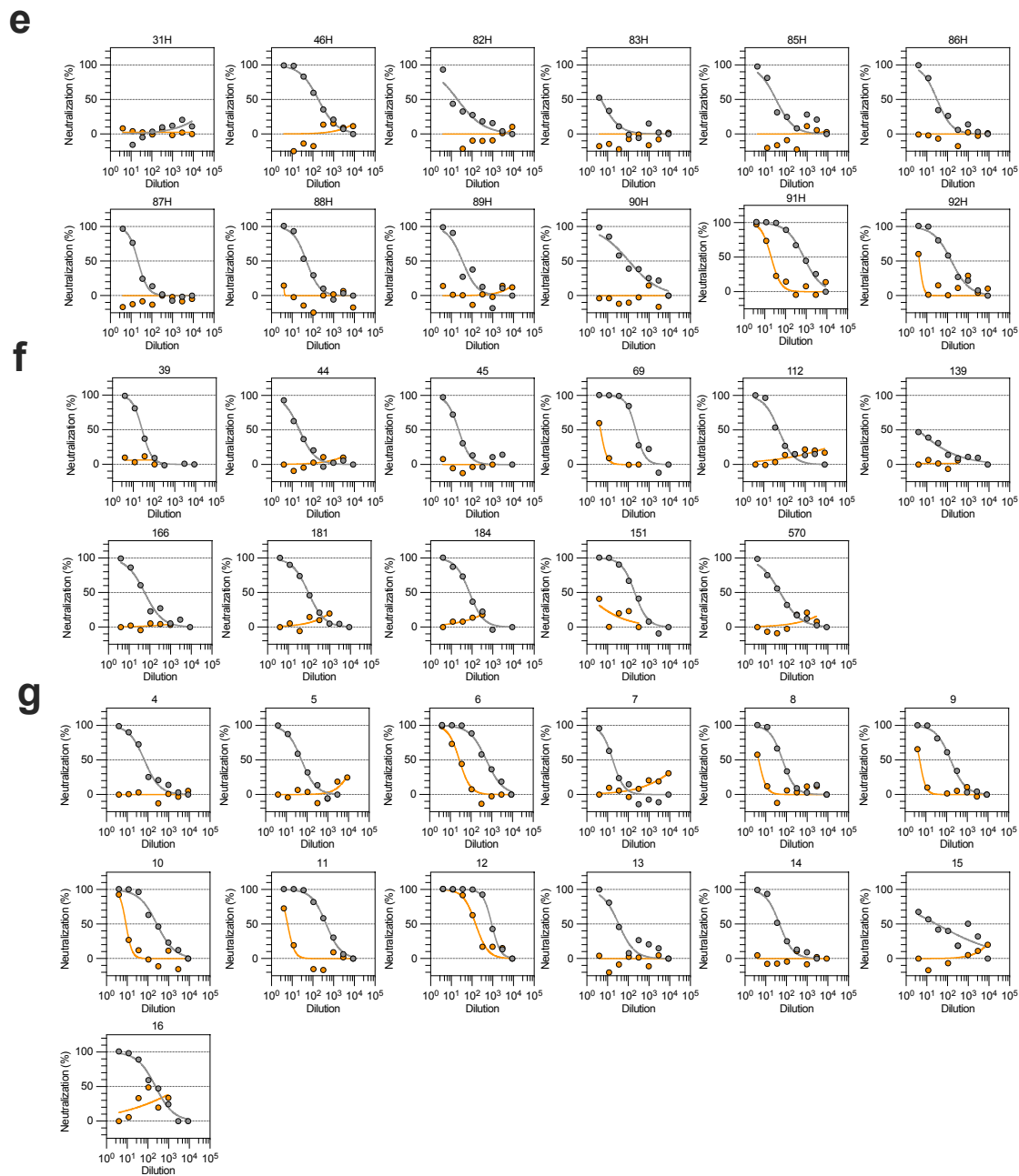

Supplementary information

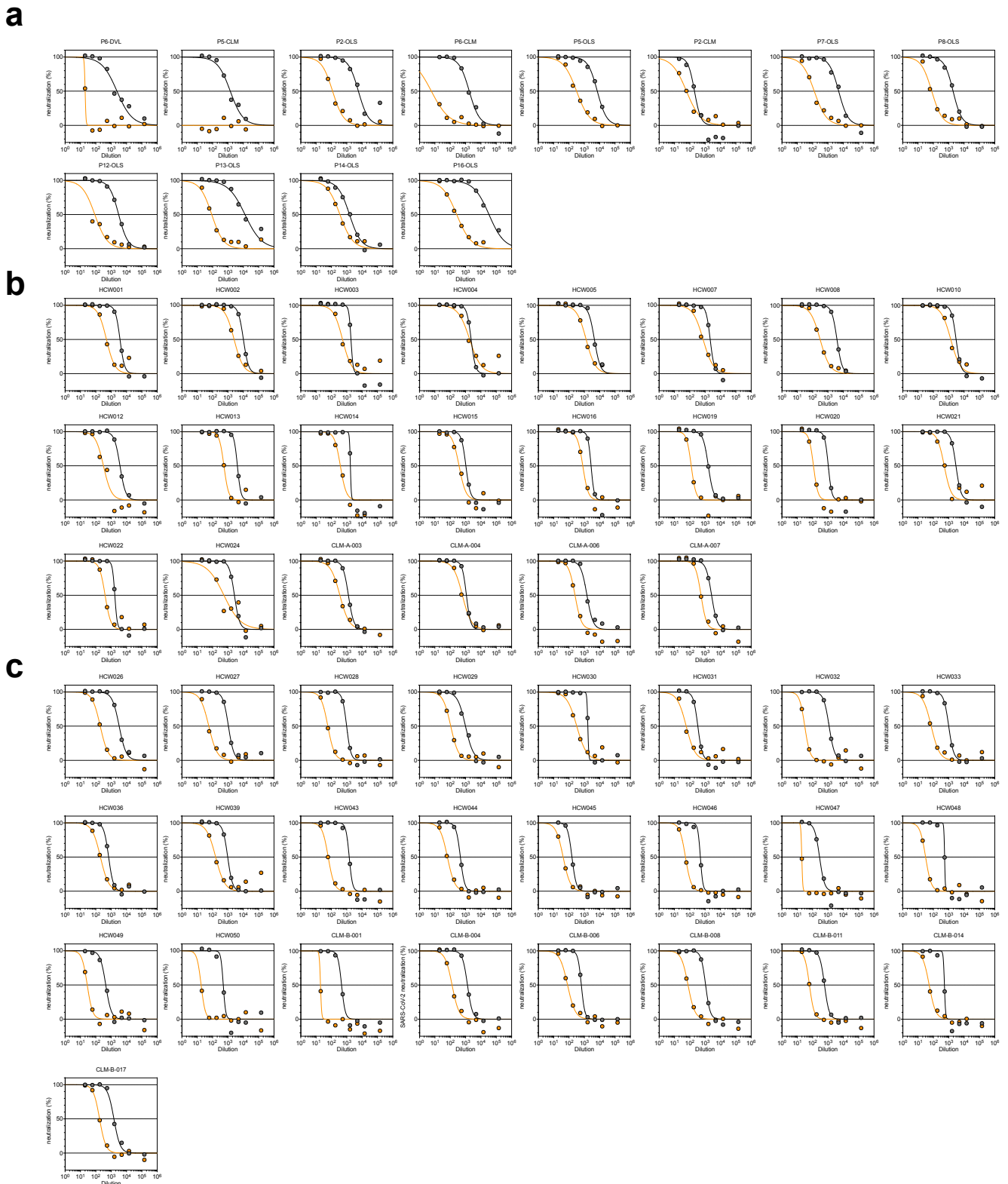
Broadly neutralizing antibodies overcome SARS-CoV-2 Omicron antigenic shift

In the format provided by the authors and unedited

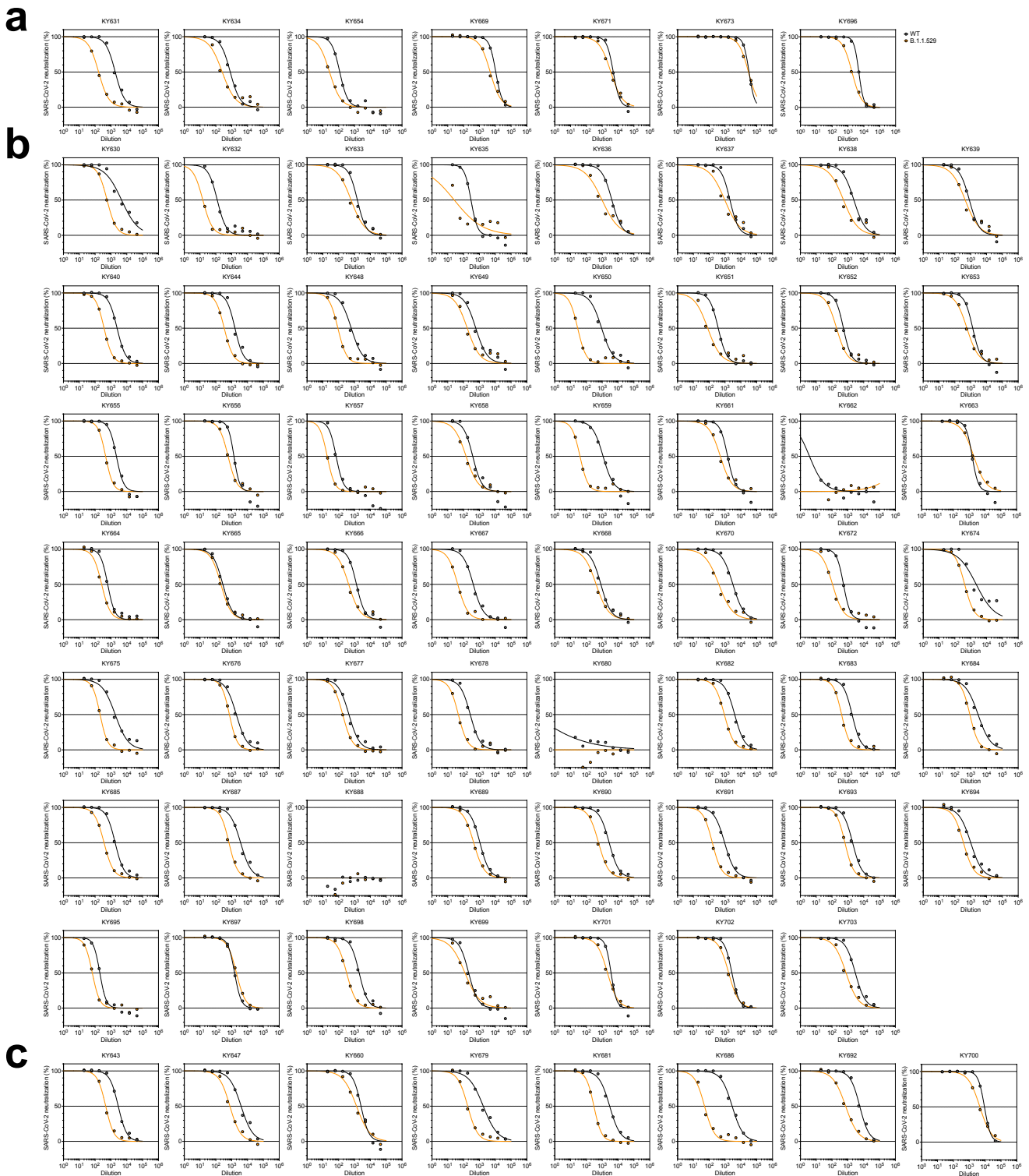
a**b****c****d**



Supplementary Fig. 1. Neutralization of WT and Omicron S pseudotyped SARS-CoV-2 virus neutralization by plasma from COVID-19 convalescent and vaccinated individuals. Neutralization of SARS-CoV-2 pseudotyped VSV carrying Wuhan-Hu-1 D614G (grey), Beta (blue) or Omicron (orange) S protein by plasma from convalescent (a) or vaccinated individuals (b, mRNA-1273; c, BNT162b2; d, ChAdOx1; e, Ad26.COV2.S; f, Sputnik V; g, BBIBP-CorV) as shown in Fig. 2a. Data are representative of $n = 2$ independent experiments.



Supplementary Fig. 2. Neutralization of WT and Omicron S pseudotyped SARS-CoV-2 virus neutralization by plasma from COVID-19 convalescent and vaccinated individuals. a-c, Neutralization of SARS-CoV-2 pseudotyped VSV carrying Wuhan-Hu-1 or Omicron S protein by plasma from convalescent individuals 2-4 weeks after infection by WT SARS-CoV-2 (a, 11 out of 12 individuals were hospitalized for COVID-19), and previously infected (b) or naïve (c) individuals, 2-4 weeks after receiving the second dose of BNT162b2 mRNA vaccine. Data are representative of $n = 2$ independent experiments.



Supplementary Fig. 3. Neutralization of WT and Omicron S pseudotyped SARS-CoV-2 by plasma from vaccinated dialysis patients. a-c, Neutralization of SARS-CoV-2 pseudotyped VSV carrying Wuhan-Hu-1 or Omicron S protein by plasma from convalescent dialysis patients 2-4 weeks after vaccination with 3 doses of BNT162b2 (a), naïve dialysis patients 2-4 weeks after vaccination with 3 doses of BNT162b2 (b) or mRNA1273 (c). Data are representative of $n = 2$ independent experiments.

Supplementary Table 1. Characteristics of single point mutations present in Omicron RBD relative to Wuhan-Hu-1 RBD.

	RBD expr.	hACE2 binding	hACE2 binding
		FACS	SPR
	log fold-change	log fold-change	fold-change
G339D	0.3	0.06	
S371L	-0.61	-0.14	
S373P	-0.22	-0.08	
S375F	-1.81	-0.55	
K417N	0.1	-0.45	0.3
N440K	-0.12	0.07	1.2
G446S	-0.4	-0.2	
S477N	0.06	0.06	
T478K	0.02	0.02	1.2
E484A	-0.23	-0.07	1.0 for E484K
Q493K	0.03	0.05	
G496S	0.12	-0.63	
Q498R	-0.1	-0.06	
N501Y	-0.14	0.24	6.2
Y505H	0.16	-0.71	
Total:	-2.84 (692-fold loss)	-2.39 (245-fold loss)	
K417N/ E484K/ N501Y			2.4

Expression and FACS hACE2 binding data from²²