Supplementary Information

Neutralization of SARS-CoV-2 BQ.1.1 and XBB.1.5 by Breakthrough Infection Sera from Previous and Current Waves in China

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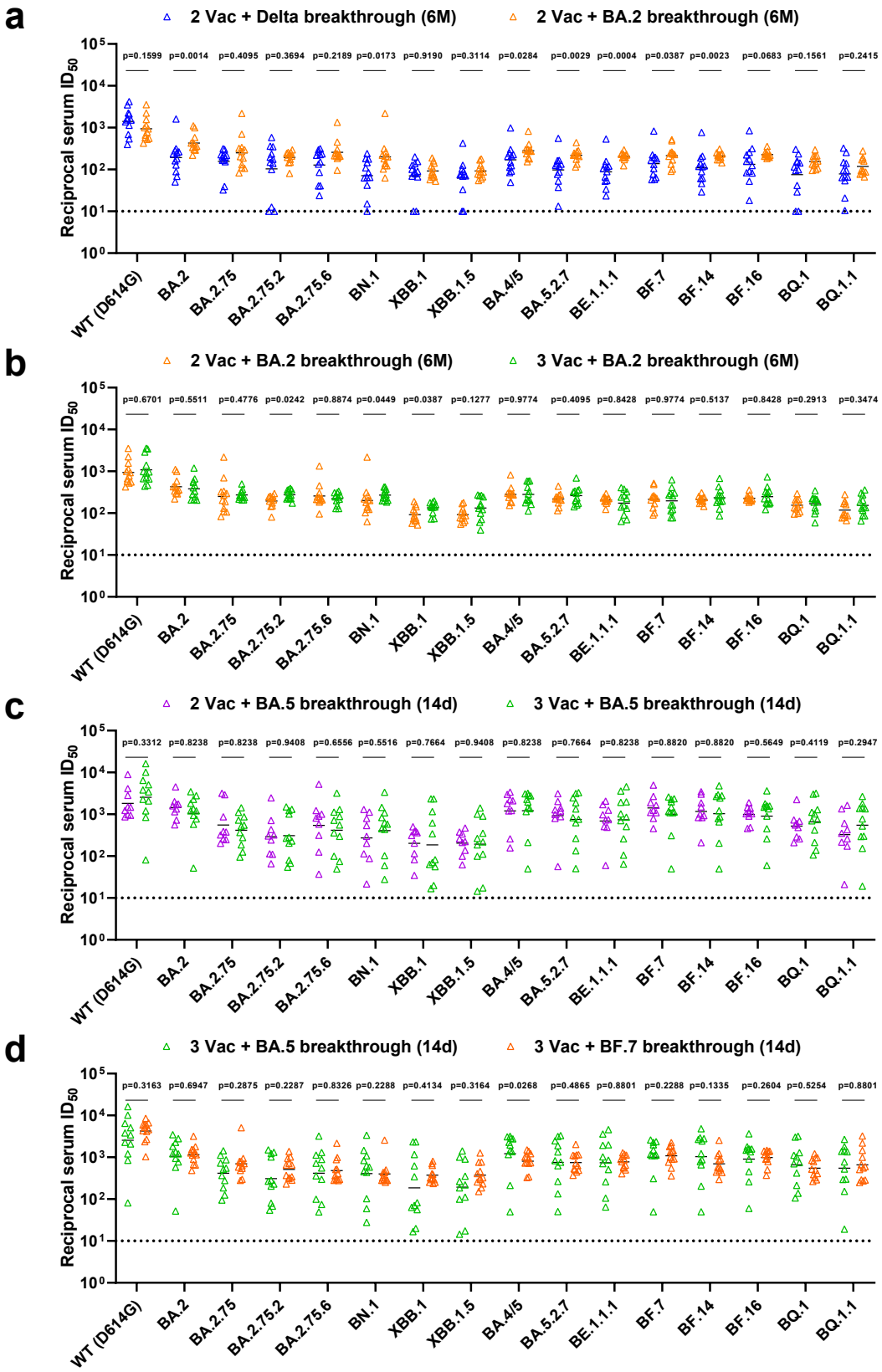

Supplementary Fig. S1. In parallel comparison of serum neutralization titers against distinct SARS-CoV-2 variants. (a) Neutralization titers of sera collected at month 6 from individuals with

Delta breakthrough infection versus those with BA.2 breakthrough infection after 2 doses of inactivated vaccinations. (b) Neutralization titers of sera collected at month 6 from individuals with BA.2 breakthrough infection after 2 doses versus those after 3 doses of inactivated vaccinations. (c) Neutralization titers of sera collected at day 14 from individuals with BA.5 breakthrough infection after 2 doses versus those after 3 doses of inactivated vaccinations. (d) Neutralization titers of sera collected at day 14 from individuals with BA.5 breakthrough infection versus those with BF.7 breakthrough infection after 3 doses of inactivated vaccinations. *P* values were determined by multiple Mann-Whitney tests.

Supplementary Table S1. Baseline characteristics of enrolled participants

	3 × CoronaVac (n=11)	2 × CoronaVac + ZF2001 (n=11)	2 × Vac + Delta breakthrough (n=12)	2 × Vac + BA.2 breakthrough (n=12)	3 × Vac + BA.2 breakthrough (n=12)	2 × Vac + BA.5 breakthrough (n=9)	3 × Vac + BA.5 breakthrough (n=11)	3 × Vac + BF.7 breakthrough (n=12)
Age(years), median (range)	44.3(28-63)	39.7(20-53)	47(35-55)	43(25-66)	37(32-66)	30.8(23-47)	30.6(22-47)	40.1 (34-50)
Male, n (%)	7(63.6%)	3(27.2%)	5(41.6%)	9 (75.0%)	8(66.7%)	6(66.6%)	5(45.5%)	4(33.3%)
BMI (kg/m^2), mean (SD)	24.7(3.1)	23.9(3.7)	29(10.7)	25.1(2.6)	25.2(3.2)	24(3.2)	20.9(2.2)	23.9(3.3)
Breakthrough infections days after the last Coronavirus vaccines, median (range)	N/A	N/A	76.4 (34-128)	ND	ND	458.3 (325-587)	313.5 (220-387)	407.4 (363-432)
Serum samples collection days after the vaccination or infection, median (range)	17.5（15-22）	18（18）	156.6（153-161）	180(164-202)	176(167-196)	25.2（21-34）	21.9（18-24）	14.1（10-19）
Comorbidities (%)								
Any, n (%)	0(0%)	0(0%)	2(16.6%)	3(25%)	0(0%)	0(0%)	0(0%)	0(0%)
HTN, n (%)	0(0%)	0(0%)	2(16.6%)	3(25%)	0(0%)	0(0%)	0(0%)	0(0%)
CAD, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
DM, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
NASH, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Arrhy, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Asthma, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Rhinitis, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Urticaria, n (%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)

N/A, not applicable. ND, no data. BMI, body mass index. CAD, coronary artery disease. HTN, hypertension. DM, diabetes mellitus. Arrhy, arrhythmia, NASH, non-alcoholic steatohepatitis.