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**Supplemental information**

**Robust SARS-CoV-2-neutralizing  
antibodies sustained through 6 months  
post XBB.1.5 mRNA vaccine booster**

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Clinical Information	Across all		XBB.1.5 MV		XBB infx		Prior Omicron infection + XBB.1.5 MV				
	Number or mean	% or range	Number or mean	% or range	Number or mean	% or range	Pre-XBB infx + XBB.1.5 MV		XBB infx + XBB.1.5 MV		
							Number or mean	% or range	Number or mean	% or range	
Total participants	39		10		9		10		10		
Male	8	20.5%	3	30%	1	11.10%	2	20%	2	20%	
Female	31	79.5%	7	70%	8	88.90%	8	80%	8	80%	
Age	51.6	(30, 67)	52.6	(38, 65)	52.1	(40, 59)	49.7	(36, 67)	52.1	(30, 62)	
First two WT doses	Pfizer	35	89.7%	9	90%	8	88.90%	9	90%	9	90%
	Moderna	3	7.7%	1	10%	1	11.10%	1	10%	0	0%
	Janssen	1	2.6%	0	0%	0	0%	0	0%	1	10%
Third WT dose	Pfizer	34	87.2%	9	90%	8	88.90%	9	90%	8	80%
	Moderna	5	12.8%	1	10%	1	11.10%	1	10%	2	20%
Fourth WT dose	Pfizer	13	33.3%	4	40%	3	33.30%	2	20%	4	40%
	Moderna	5	12.8%	3	30%	1	11.10%	0	0%	1	10%
	None	21	53.8%	3	30%	5	55.60%	8	80%	5	50%
BA.5 bivalent booster	Pfizer	23	59%	6	60%	7	77.80%	4	40%	6	60%
	Moderna	16	41%	4	40%	2	22.20%	6	60%	4	40%
XBB MV booster	Pfizer	13	33.3%	4	40%	0	0%	3	30%	6	60%
	Moderna	17	43.6%	6	60%	0	0%	7	70%	4	40%
	None	9	23.1%	0	0%	9	100%	0	0%	0	0%
First sample post-XBB (days)	26.4	(21, 34)	26.2	(22, 32)	27.8	(24, 30)	26.9	(21, 34)	24.7	(21, 30)	
Second sample post-XBB (days)	82.1	(68, 104)	82.1	(70, 93)	92.1	(78, 104)	77.6	(68, 97)	77.5	(68, 92)	

**Table S1. Summary of information on participants in this study who were exposed to XBB. Related to Figure 1.** Demographic, vaccine, and serum collection information summarized for each cohort. Listed values represent the mean and range (age and sera collection) or number and percentage (vaccine type and sex).

Participa nt ID	Age	Gender	Race	Ethnicity	Infectio n Period	WT vaccines				Bivalent vaccine	XBB.1.5 MV vaccine	Days post-XBB		Days after 1 <sup>st</sup> WT vaccine dose				XBB.1.5 MV vaccine
						1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose	4 <sup>th</sup> dose			1 <sup>st</sup> sample	2 <sup>nd</sup> sample	2 <sup>nd</sup> WT dose	3 <sup>rd</sup> WT dose	4 <sup>th</sup> WT dose	Bivalent vaccine	
<b>XBB.1.5 MV (n=12)</b>																		
G4-1	62	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	27	93	22	268	491	657	993
G4-4	65	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	28	79	22	266	503	637	990
G4-6	55	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Moderna	Moderna	Moderna	25	82	21	272	472	637	995
G4-8	38	Male	White	Not Hispanic or Latino	NA	Moderna	Moderna	Moderna	NA	Moderna	Pfizer	27	88	28	235	NA	539	914
G4-9	64	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	32	70	21	270	455	606	976
G4-12	40	Male	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	NA	Moderna	Moderna	22	78	21	268	NA	584	969
G4-14	50	Male	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Moderna	Pfizer	Moderna	31	88	21	235	444	621	996
G4-15	54	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Moderna	Pfizer	Moderna	22	89	21	329	490	623	990
G4-17	56	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	22	71	21	287	507	654	1016
G4-19	42	Female	White	Not Hispanic or Latino	NA	Pfizer	Pfizer	Pfizer	NA	Moderna	Pfizer	26	83	21	239	NA	520	910
<b>XBB infx (n=9)</b>																		
G3-4	59	Female	White	Not Hispanic or Latino	2023.08	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	NA	26	78	21	295	472	660	NA
G3-6	54	Female	White	Not Hispanic or Latino	2023.09	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	NA	28	100	21	222	421	602	NA
G3-9	59	Female	White	Not Hispanic or Latino	2023.05	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	NA	30	86	25	281	469	613	NA
G3-12	42	Male	White	Not Hispanic or Latino	2023.04	Pfizer	Pfizer	Pfizer	NA	Moderna	NA	28	88	21	269	NA	615	NA
G3-15	53	Female	White	Not Hispanic or Latino	2023.02	Pfizer	Pfizer	Pfizer	NA	Pfizer	NA	27	97	22	320	NA	645	NA
G3-16	40	Female	White	Not Hispanic or Latino	2023.05	Pfizer	Pfizer	Pfizer	NA	Pfizer	NA	28	90	21	279	NA	658	NA
G3-17	49	Female	White	Not Hispanic or Latino	2023.07	Pfizer	Pfizer	Pfizer	NA	Moderna	NA	30	95	22	328	NA	641	NA
G3-18	59	Female	White	Not Hispanic or Latino	2023.04	Moderna	Moderna	Moderna	Moderna	Pfizer	NA	24	91	28	268	505	584	NA
G3-20	54	Female	White	Not Hispanic or Latino	2023.08	Pfizer	Pfizer	Pfizer	NA	Pfizer	NA	29	104	23	284	NA	632	NA
<b>Pre-XBB infx + XBB.1.5 MV (n=10)</b>																		
G5-1	41	Female	Declined	Not Hispanic or Latino	2022.09	Moderna	Moderna	Moderna	NA	Pfizer	Moderna	25	68	28	330	NA	715	1009
G5-2	61	Female	White	Not Hispanic or Latino	2022.04	Pfizer	Pfizer	Pfizer	NA	Moderna	Moderna	34	76	22	302	NA	649	1006
G5-3	53	Female	White	Not Hispanic or Latino	2022.04	Pfizer	Pfizer	Pfizer	NA	Pfizer	Moderna	25	81	21	275	NA	626	999
G5-4	49	Male	White	Not Hispanic or Latino	2022.01	Pfizer	Pfizer	Pfizer	NA	Pfizer	Pfizer	22	77	21	265	NA	691	956
G5-5	67	Female	White	Not Hispanic or Latino	2022.07	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	Moderna	29	73	21	271	473	690	992
G5-7	48	Female	White	Not Hispanic or Latino	2022.01	Pfizer	Pfizer	Pfizer	NA	Moderna	Pfizer	22	75	21	254	NA	554	925
G5-10	40	Female	Multiple	Not Hispanic or Latino	2022.04	Pfizer	Pfizer	Pfizer	NA	Moderna	Moderna	21	70	24	276	NA	638	1003
G5-12	43	Female	White	Not Hispanic or Latino	2022.01	Pfizer	Pfizer	Pfizer	NA	Moderna	Pfizer	32	72	21	234	NA	566	913
G5-13	36	Male	White	Not Hispanic or Latino	2022.08	Pfizer	Pfizer	Pfizer	NA	Moderna	Moderna	30	97	21	316	NA	655	980
G5-14	59	Female	White	Not Hispanic or Latino	2022.04	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	29	87	21	277	543	610	986
<b>XBB infx + XBB.1.5 MV (n=10)</b>																		
G6-1	54	Female	White	Not Hispanic or Latino	2023.02	Pfizer	Pfizer	Pfizer	Moderna	Pfizer	Moderna	22	70	21	262	492	632	1003
G6-2	58	Female	White	Not Hispanic or Latino	2023.02	Pfizer	Pfizer	Pfizer	NA	Pfizer	Pfizer	22	74	21	284	NA	682	1000
G6-3	61	Male	White	Not Hispanic or Latino	2023.05	Pfizer	Pfizer	Moderna	NA	Moderna	Moderna	30	87	21	231	NA	541	917
G6-4	42	Female	White	Not Hispanic or Latino	2023.03	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	Pfizer	29	83	21	266	477	608	996
G6-5	62	Female	White	Not Hispanic or Latino	2023.06	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	21	73	21	277	439	643	1002
G6-6	46	Male	White	Not Hispanic or Latino	2023.05	Janssen	Janssen	Moderna	NA	Pfizer	Pfizer	24	71	214	386	NA	543	921
G6-7	61	Female	White	Not Hispanic or Latino	2023.04	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	Moderna	26	76	21	275	519	625	1004
G6-8	62	Female	Asian	Not Hispanic or Latino	2023.04	Pfizer	Pfizer	Pfizer	Pfizer	Pfizer	Moderna	29	81	21	294	516	630	1000
G6-9	30	Female	White	Hispanic or Latino	2023.08	Pfizer	Pfizer	Pfizer	NA	Moderna	Pfizer	22	68	21	218	NA	580	922
G6-11	45	Female	White	Not Hispanic or Latino	2023.08	Pfizer	Pfizer	Pfizer	NA	Pfizer	Pfizer	22	92	21	269	NA	624	984

**Table S2. Details of participants exposed to XBB. Related to Figure 1.** Clinical information for each participant, including demographic, vaccine, infection, and sera details.

Participant ID	Age	Gender	Race	Ethnicity	Infection Period	Days post-vaccination		
						1 <sup>st</sup> sample	2 <sup>nd</sup> sample	3 <sup>rd</sup> sample
<b>BA.5 BV (n=8)</b>								
BA.5-1	24	Female	White	Not Hispanic or Latino	NA	30	85	162
BA.5-2	43	Female	White	Not Hispanic or Latino	NA	26	91	205
BA.5-3	45	Male	White	Not Hispanic or Latino	NA	26	98	204
BA.5-4	36	Female	White	Not Hispanic or Latino	NA	27	90	173
BA.5-5	38	Female	White	Not Hispanic or Latino	NA	24	90	198
BA.5-6	36	Male	White	Not Hispanic or Latino	NA	24	95	161
BA.5-7	42	Female	White	Not Hispanic or Latino	NA	27	97	177
BA.5-8	32	Female	White	Not Hispanic or Latino	NA	29	97	163
<b>Average</b>	<b>37.0</b>	-	-	-	-	<b>26.6</b>	<b>92.9</b>	<b>180.4</b>
<b>XBB.1.5 MV (n=14)</b>								
XBB.1.5-1	55	Female	White	Not Hispanic or Latino	NA	25	82	165
XBB.1.5-2	38	Male	White	Not Hispanic or Latino	NA	27	88	171
XBB.1.5-4	36	Male	White	Not Hispanic or Latino	NA	26	94	164
XBB.1.5-5	58	Female	Black	Not Hispanic or Latino	NA	21	63	136
XBB.1.5-6	60	Female	White	Not Hispanic or Latino	NA	25	82	223
XBB.1.5-7	53	Female	White	Not Hispanic or Latino	NA	23	70	139
XBB.1.5-8	27	Female	White	Not Hispanic or Latino	NA	32	76	153
XBB.1.5-9	50	Male	White	Not Hispanic or Latino	NA	32	88	190
XBB.1.5-10	60	Female	White	Not Hispanic or Latino	NA	28	80	178
XBB.1.5-11	42	Female	White	Not Hispanic or Latino	NA	23	74	153
XBB.1.5-12	58	Female	White	Not Hispanic or Latino	NA	21	71	155
XBB.1.5-13	31	Female	White	Not Hispanic or Latino	NA	28	92	167
XBB.1.5-14	68	Male	White	Not Hispanic or Latino	NA	27	85	176
XBB.1.5-15	47	Male	Asian	Not Hispanic or Latino	NA	22	72	158
<b>Average</b>	<b>48.8</b>	-	-	-	-	<b>25.7</b>	<b>79.8</b>	<b>166.3</b>

**Table S3. Details of participants exposed to the BA.5 bivalent mRNA vaccine or the XBB.1.5 MV vaccine booster. Related to Figure 2.** Clinical information for each participant, including demographics and sample collection timepoints.

