

Broad Protection Against Clade 1 Sarbecoviruses After a Single Immunization with Cocktail Spike-Protein-Nanoparticle Vaccine

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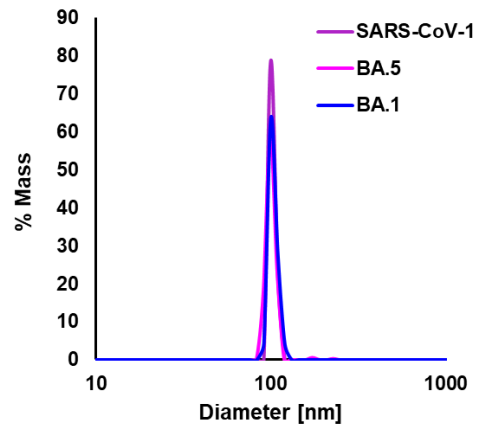
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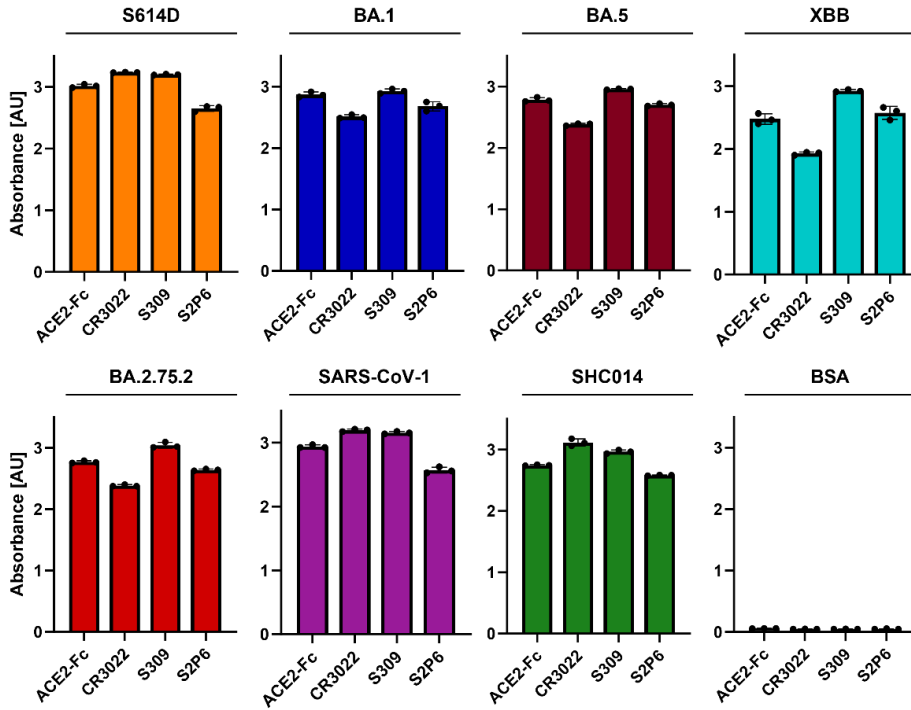
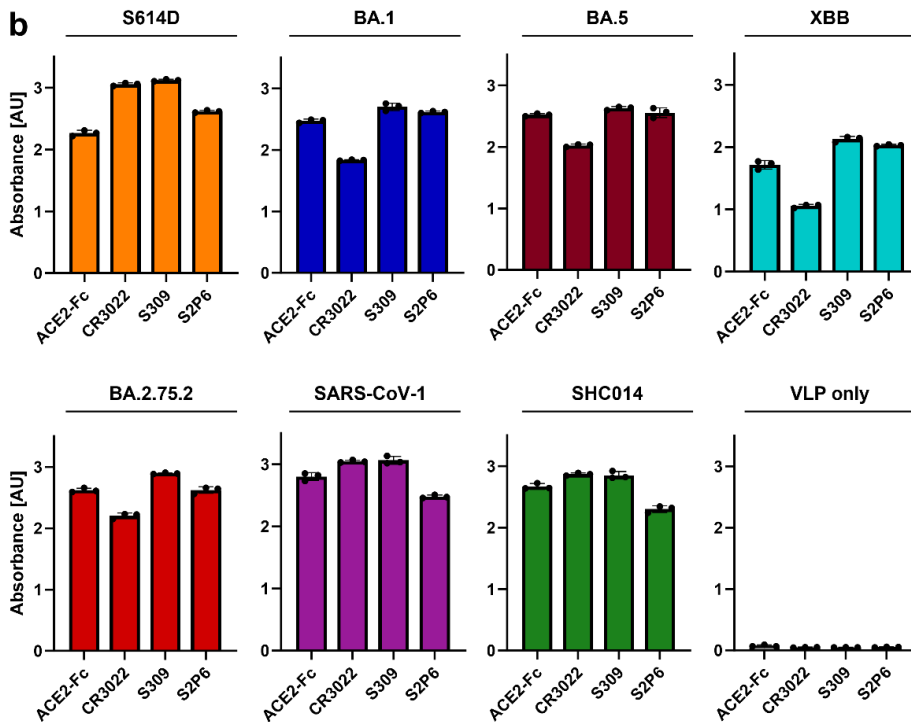
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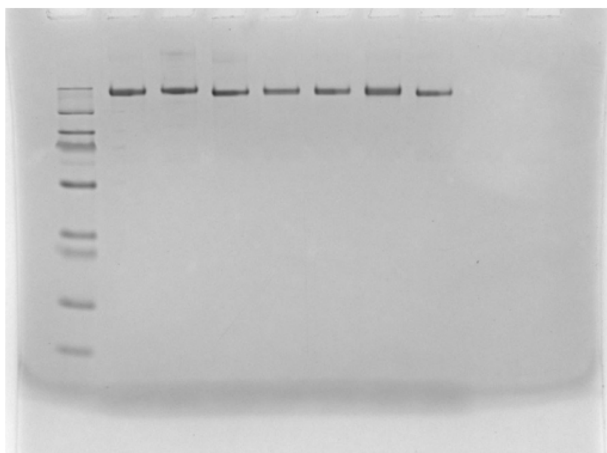
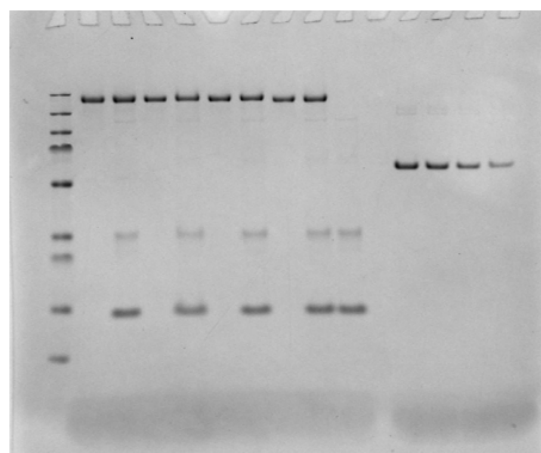
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Supplementary Figure 1. Characterization of VLP-SARS-CoV-1-S, VLP-BA.1-S, and VLP-BA.5-S by dynamic light scattering. Colors indicate which VLP-S was measured (SARS-CoV-1: purple; BA.5: magenta; BA.1: dark blue).

a**b**

Supplementary Figure 2. Characterization of the binding of ACE2-Fc and S-binding antibodies to (a) S proteins and (b) VLP-S. (mean $\pm$ SD, $n = 3$: one independent assay with three technical replicates). Colors indicate spike proteins (614D: orange; BA.1: dark blue; BA.5: brown; XBB: cyan; BA.2.75.2: red; SARS-CoV-1: purple; SHC014: green).

a**b**

Supplementary Figure 3. Unprocessed SDS-PAGE gel images, cropped versions of which appear in **(a)** Fig. 2a and **(b)** Fig. 2c. These gels were run twice from the same preparation for each sample with similar results.

Supplementary Table 1. Protein sequences

MS2-AviTag	MASNFTQFVLVDNGGTGDVTVAPSNFANGVAEWISSNSRSQAYKVTCVSRQSSAQNRK YTIKVEVPKVATQTVGGVELPVAAWRSYLNMELTIPFATNSDCELIVKAMQGLLKDGN PIPSAIAANSIGYASNFTQFVLVDNGGGLNDIFEAQKIEWHETGDVTVAPSNFANGVAE WISSNSRSQAYKVTCVSRQSSAQNRKYTIKVEVPKVATQTVGGVELPVAAWRSYLNME LTIPIFATNSDCELIVKAMQGLLKDGNPIPSAIAANSIGY
SARS-CoV-2 HexaPro S	MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFS NVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIRGWIFGTTLDSKTQSLIV NNATNVVIKVCEVFQFCNDPFLGVYHKNKNSWMESEFRVYSSANNCTFEYVSQPFLMD LEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPQGFSALEPLVDLPIGINITRFQT LLALHRSYLTTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSET KCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFASVYAWNKRKRISN CVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTNVYADSFVIRGDEVQRQIAPGQTGKIA DYNKLPDDFTGCVIAWNSNNLDSKVGGNYNYLYRLFRKSNLKPFERDISTEIQAGST PCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRVVLSFELLHAPATVCGPKKSTNLVKN KCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVS VITPGTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAEH VNNSYECDIPIGAGICASYQTQTSNPGSASSVASQSIAYTMSLGAENSVAYSNNISAIPTN FTISVTTEILPVSMTKTSVDCTMYICGDSTECNSLLLQYGSFCTQLNRALTGIAVEQDKNT QEVFAQVKQIYKTPPIKDFGGFNFSQILPDPSKPSKRSPIEDLLFNKVTLADAGFIKQYGD CLGDIAARDLICAQKFNGLTVLPPLLDEMIAQYTSALLAGTITSGWTFGAGPALQIPFP MQMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDLSSTPSALGKLQDVVNQNAQ ALNTLVKQLSSNFGAISSVLNDILSRLDPPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIR ASANLAATKMSECVLGQSKRVDFCGKGYHLMSPQSAPHGVVFLHVTYVPAQEKNT TAPAICHGDKAHFPREGVFSNGTHWFVTQRNFYEPQIITDNTFVSGNCDVVIGIVNNT VYDPLQPELDSFKEELDKYFKNHTSPDVLGDISGINASVVNIQKEIDRLNEVAKNLNES LIDLQELGKYEQSGYIPEAPRDGQAYVRKDGWVLLSTFLGGLNDIFEAQKIEWHEHH HHHH
BA.1 HexaPro S	MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFS NVTWFHVISGTNGTKRFDNPVLPFNDGVYFASIEKSNIRGWIFGTTLDSKTQSLIVNNA TNVVIKVCEVFQFCNDPFLDHKNKNSWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQG NFKNLREFVFKNIDGYFKIYSKHTPIIVREPEDLPQGFSALEPLVDLPIGINITRFQTLLALH RSYLTTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETKCTLK SFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFDEVFNATRFASVYAWNKRKRISNCVAD YSVLYNLAPFFTFKCYGVSPTKLNDLCFTNVYADSFVIRGDEVQRQIAPGQTGNIADYNY KLPDDFTGCVIAWNSNKLDSKVSGNYNYLYRLFRKSNLKPFERDISTEIQAGNKPCNG VAGFNCYFPLRSYSFRPTYGVGHQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVN FNFNGLKGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITPG TNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNS YECDIPIGAGICASYQTQTSKSHGSASSVASQSIAYTMSLGAENSVAYSNNISAIPTNFTIS VTTEILPVSMTKTSVDCTMYICGDSTECNSLLLQYGSFCTQLKRALTGIAVEQDKNTQEV FAQVKQIYKTPPIKYFGGFNFSQILPDPSKPSKRSPIEDLLFNKVTLADAGFIKQYGDCLG DIAARDLICAQKFGLTVLPPLLDEMIAQYTSALLAGTITSGWTFGAGPALQIPFPMQM AYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDLSSTPSALGKLQDVVNHNAAQALNT LVKQLSSKFGAISSVLNDIFSRLDPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASAN LAATKMSECVLGQSKRVDFCGKGYHLMSPQSAPHGVVFLHVTYVPAQEKNTTAPAI CHDGDKAHFPREGVFSNGTHWFVTQRNFYEPQIITDNTFVSGNCDVVIGIVNNTVYDP LQPELDSFKEELDKYFKNHTSPDVLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQ ELGKYEQSGYIPEAPRDGQAYVRKDGWVLLSTFLGGLNDIFEAQKIEWHEHHHHHHH

BA.5 HexaPro S	MFVFLVLLPLVSSQCVNLITRTQSYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFSNVT WFHAISGTNGIKRFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLDSKTQSLILVNNATNV VIKVFCEFCNDPFLDVYHKNKSWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQG NFKNLREFVFKNIDGYFKIYSKHTPINLGRDLPQGFSALEPLVDLPIGINITRFQTLLALHR SYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETKCTLKS FTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFDEVFNATRFASVYAWNRRKRISNCVADY SVLYNFAPFFAFKCYGVSPTKLNDLCFTNVYADSFVIRGNEVSQIAPGQTGNIADYNYK LPDDFTGCVIAWNSNKLDSKVGGNYNRYRLFRKSNLKPFERDISTEYQAGNKPCNGV AGVNCYFPLQSYGFRPTYGVGHQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVNF NFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITPGT NTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGNSNVFQTRAGCLIGAEYVNNNSY ECDIPIGAGICASYQTQTKSHGSASSVASQSIIAYTMSLGAENSVAYSNNNSIAIPTNFTISV TTEILPVSMTKTSVDCTMYICGDSTECNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVF AQVKQIYKTPPIKYFGGFNFSQILPDPSKPSKRSPIEDLLFNKVTLADAGFIKQYGDCLGD IAARDLICAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGPALQIPFPMQMA YRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSTPSALGKLQDVVNHNAAQALNTL VKQLSSKFAGAISSVLNDILSRDPPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANL AATKMSECVLGQSKRVDFCGKGYHLSFQPSAPHGVVFLHVTYVPAQEKNTTAPAI HDGKAHFPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPL QPELDSFKEELDKYFKNHTSPDVDLGDISGINASVUNIKEIDRLNEVAKNLNESLIDLQE LGKYEQSGGYPEAPRDGQAYVRKDGWVLLSTFLGGLNDIFEAQKIEWHEHHHHHH
XBB HexaPro S	MFVFLVLLPLVSSQCVNLITRTQSYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFSNVT WFHAIHVSGTNGTKRFDNPALPFNDGVYFASTEKSNIIRGWIFGTTLDSKTQSLILVNNNA TNVVIKVFCEFCNDPFLDVYQKNKSWMESEFRVYSSANNCTFEYVSQPFLMDLEGK EGNFKNLREFVFKNIDGYFKIYSKHTPINLERDLPQGFSALEPLVDLPIGINITRFQTLLAL HRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKYNENGTITDAVDCALDPLSETKCTL KSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFHEVEFNATTFASVYAWNRRKRISNCVA DYSVIYNFAPFFAFKCYGVSPTKLNDLCFTNVYADSFVIRGNEVSQIAPGQTGNIADYNY KLPDDFTGCVIAWNSNKLDSKPSGNYNYLYRLFRKSKLKPFERDISTEYQAGNKPCNG VAGSNCYSPLQSYGFRPTYGVGHQPYRVVLSFELLHAPATVCGPKKSTNLVKNKCVN FNFNGLTGTGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLEILDITPCSFGGVSVITPG TNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGNSNVFQTRAGCLIGAEYVNNNS YECDIPIGAGICASYQTQTKSHGSASSVASQSIIAYTMSLGAENSVAYSNNNSIAIPTNFTIS VTTEILPVSMTKTSVDCTMYICGDSTECNLLLQYGSFCTQLKRALTGIAVEQDKNTQEV FAQVKQIYKTPPIKYFGGFNFSQILPDPSKPSKRSPIEDLLFNKVTLADAGFIKQYGDCLG DIAARDLICAQKFNGLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGPALQIPFPMQM AYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSTPSALGKLQDVVNHNAAQALNT LVKQLSSKFAGAISSVLNDILSRDPPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASAN LAATKMSECVLGQSKRVDFCGKGYHLSFQPSAPHGVVFLHVTYVPAQEKNTTAPAI CHDGKAHFPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDP LQPELDSFKEELDKYFKNHTSPDVDLGDISGINASVUNIKEIDRLNEVAKNLNESLIDLQ ELGKYEQSGGYPEAPRDGQAYVRKDGWVLLSTFLGGLNDIFEAQKIEWHEHHHHHH

BA.2.75.2 HexaPro S	MFVFLVLLPLVSSQCVNLITRTQSYTNSFTRGVYYPDKVFRSSVLHSTQDLFLPFFSNVT WFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWIFGTTLDSTQSLIVNNA TNVVIKVCCEFQFCNDPFLDVYYHENNKSRMESELRVYSSANNCTFEYVSQPFLMDLEG KQGNFKNLREFVFKNIDGYFKIYSKHTPVNLGRDLPQGFSALEPLVDLPIGINITRFQTLL ALHRSYLTPGDSSSSWTAGAAAYYVGYLQPRTFLLKYNENGTTITDAVDCALDPLSETKC TLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFHEVFNATTFASVYAWNKRISNCV ADYSVLYNFAPFFAFKCYGVSPTKLNDLCFTNVYADSFVIRGNEVSQIAPGQTGNIADY NYKLPDDFTGCVIAWNSNKLDSKVSNGYNYLYRLFRKSKLKPFERDISTEIQAGNKP NGVAGSNCYFPLQSYGFRPTYGVGHQPYRVVLSFELLHAPATVCGPKKSTNLVKNKC VNFNFNGLTGTGVLTESNKKFLPFQFGRDIADTTDAVRDPQTLEILDITPCSFGGVS PGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAGCLIGAEYVN NSYECDIPIGAGICASYQTQTKSHGSASSVASQSIIAYTMSLGAENSVAYSNNIAIPTNFT ISVTTEILPVSMTKTSVDCTMYICGDSTECNLLLQYGSFCTQLKRALTGIAVEQDKNTQ EVFAQVKQIYKTPPIKYFGGFNFSQILPDPSKPSKRSPIEDLLFNKVTLADAGFIKQYGDC LGDIAARDLICAQKFNGLTVLPPLTDEMIAQYTSALLAGTITSGWTFGAGPALQIPFPM QMAYRFNGIGVTQNVLYENQKLIANQFNSAIGKIQDSLSTPSALGKLQDVVNHNAAQAL NTLVKQLSSKFGAISSVLNDILSRLDPPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRAS ANLAATKMSECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFHTTA PAICHDGKAHFPREGVFSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVY DPLQPELDSFKEELDKYFKNHTSPDVLDGDISGINASVVNIQKEIDRLNEVAKNLNESLIN LQELGKYEQGSYIPEAPRDGQAYVRKDGGEWVLLSTFLGGLNDIFEAQKIEWHEHHHH HH
SARS-CoV-1 HexaPro S	MFIFLLFLTSTSGSDDLDRCTTFDDVQAPNYTQHTSSMRGVYYPDEIFRSDTLYLTQDLFL PFYSNVTGFHTINHTFGNPVIPFKDGIYFAATEKSNVVRGWVFGSTMNNKSQSIVIIINNST NVVIRACNFELCDNPFFAVSKPMGTQTHTMIFDNAFNCTFEYISDAFSLDVSEKSGNFKH LREFVFKNKDGFLYVYKGYQPIDVVRDLPSGFNTLKPFIKLPGLINITNFRAILTAFSAPQ DIWGTSAAAYFVGYLKPTTFMLKYDENGTTITDAVDCSQNPLAELKCSVKSFEIDKGIYQ TSNFRVVPSPGDVVRFPNITNLCPFGEVFNA TKFPSVYAWERKKISNCVADYSVLYNSTFF STFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPDDFMGC VLAWNTRNIDATSTGNYNKYRYLRHGKLRPFERDISNVFPSPDGKPCPTPPALNCYWPL NDYGFYTTTGIGYQPYRVVLSFELLNAPATVCGPKLSTDLIKNQCVNFNFNGLTGTGV LTPSSKRFPQFQFGRDVSDFTDSVRDPKTSEILDISPCSFGGVSIVITPGTNASSEVAVLY QDVNCTDVSTAIHADQLTPAWRIYSTGNNVFQTQAGCLIGAEHVDTSYECDIPIGAGICA SYHTVGSASSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVD CNMYICGDSTECANLLLQYGSFCTQLNRALSGIAAEQDRNTREVFAQVKQMYKTPTLK YFGGFNFSQILPDPLKPTKRSPIEDLLFNKVTLADAGFMKQYGECLGDINARDLICAQKF NGLTVLPPLTDDMIAAYTAALVSGTATAGWTFGAGPALQIPFPMQMAYRFNGIGVTQ NVLYENQKQIANQFNKAISQIQESLTTPTALGKLQDVVNQNAQALNTLVKQLSSNFGA ISSVLNDILSRLDPPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV LGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTYVPSQERNFTTAPAICHEGKAYFPR EGVVFVNGTSWFITQRNFFSPQIITTDNTFVSGNCDVVIGIINNTVYDPLQPELDSFKEELD KYFKNHTSPDVLDGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYEQGSYI PEAPRDGQAYVRKDGGEWVLLSTFLGGLNDIFEAQKIEWHEHHHHHHH

SHC014 HexaPro S	MKLLVLVFATLVSSYTIEKCLDFDDRTTPANTQFLSSHRGVYYPDDIFRSNVLHLVQDHF LPFDSNVTRFITFGLNFDNPIIPFRDGIYFAATEKSNVIRGWVFGSTMNKSQSVMNNST NLVIRACNFELCDNPFFVVLKSNNTQIPSYIFNNAFNCTFEYVSKDFNLDLGEKPGNFKD LREFVFRNKDGLHVVSGYQPISAASGLPTGFNALKPIFKLPLGINITNFRLLTAFPPRPD YWGTSAAA YFVGYLKPTTFMLKYDENGTTDAVDCSQNPLAELKCSVKSFEDKGIYQT SNFRVAPSKEVVRFPNITNLCPFGEVFNATTFPSVYAWERKRISNCVADYSVLYNSTSFS TFKCYGVSATKLNDLCFSNVYADSFVVKGDDVRQIAPGQTGVIADYNYKLPPDFLGCV LAWNTNSKDSSTSGNYNYLYRWVRRSKLNPYERDLNDIYSPGGQSCSAVGPNPCYNPL RPYGFFTTAGVGHQPYRVVLSFELLNAPATVCGPKLSTDLIKNCVNFNFNGLTGTGV LTPSSKRFQPFQFGRDVSDFDTSVRDPKTSEILDSPCSFGGVSVITPGTNTSSEVAVLYQ DVNCTDVPVAIHADQLTPSWRVYSTGNNVFQTQAGCLIGAETHVDTSECDIPIGAGICA SYHTVGSASSTSQKSIVAYTMSLGADSSIAYSNNTIAIPTNFSISITTEVMPVSMAKTSVD CNMYICGDSTECANLLLQYGSFCTQLNRALSGIAVEQDRNTREVFAQVKQMYKTPTLK DFGGFNFSQILPDPLKPTKRSPIEDLLFNKVTADAGFMKQYGECLGDINARDLICAQKF NGLTVLPPLTDDMIAAYTAALVSGTATAGWTFGAGPALQIPFPMQMA YRFNGIGVTQ NVLYENQKQIANQFNKAISQIQESLTTTPTALGKLQDVVNQNAQALNTLVKQLSSNFGA ISSVLNDILSRDPPEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV LGQSKRVDFCGKGYHLMSFPQAAPHGVVFLHVTVYVPSQERNFTTAPAICHEGKAYFPR EGVFVFNGTSWFITQRNFFSPQIITDNTFVSGSCDVVIGIINNTVYDPLQPELDSFKEELD KYFKNHTSPDVLGDISGINASVUNIQKEIDRLNEVAKNLNESLIDLQELGKYEQSGGYI PEAPRDGQAYVRKDGEWVLLSTFLGGLNDIFEAQKIEWHEHHHHHH
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Supplementary Table 2: List of coronavirus accession numbers

Clade	Name	Pango Designation	Accession Number	Notes	Reference or Identifying Source
1A	LYRa11	-	AHX37558.1 [https://www.ncbi.nlm.nih.gov/protein/AHX37558.1]		¹
1A	RsSHC014	-	AGZ48806.1 [https://www.ncbi.nlm.nih.gov/protein/AGZ48806.1]		²
1A	WIV1	-	AGZ48828.1 [https://www.ncbi.nlm.nih.gov/protein/AGZ48828.1]		²
1A	SARS-CoV-1 Urbani	-	AAP13441.1 [https://www.ncbi.nlm.nih.gov/protein/AAP13441.1]		³
1B	Rc-o319	-	BCG66627.1 [https://www.ncbi.nlm.nih.gov/protein/BCG66627.1]		⁴
1B	GD-MP789	-	QIG55945.1 [https://www.ncbi.nlm.nih.gov/protein/QIG55945.1]		⁵
1B	GX-P2V	-	QIQ54048.1 [https://www.ncbi.nlm.nih.gov/protein/QIQ54048.1]		⁶
1B	SARS-CoV-2 Wuhan-Hu-1	B	YP_009724390.1 [https://www.ncbi.nlm.nih.gov/protein/YP_009724390.1]	614D	⁷

			n/YP_009724390.1]		
1B	SARS-CoV-2/human/BEL/reg a-20174/2021	BA.1	UFO69279.1 [https://www.ncbi.nlm.nih.gov/protein/UFO69279.1]	Omicron	8
1B	SARS-CoV-2/human/BHR/229 20441474/2022	BA.2.75.2	UVJ48842.1 [https://www.ncbi.nlm.nih.gov/protein/UVJ48842.1]	Omicron	9
1B	SARS-CoV-2/human/USA/CA -CDC-STM-MV7TMMQMB/2 022	XBB	UZS22117.1 [https://www.ncbi.nlm.nih.gov/protein/UZS22117.1]	Omicron	10
1B	SARS-CoV-2/human/USA/JW 5734/2022	BA.5.5	UPI46221.1 [https://www.ncbi.nlm.nih.gov/protein/UPI46221.1]	Omicron	11
2	HKU3-8	-	ADE34766.1 [https://www.ncbi.nlm.nih.gov/protein/ADE34766.1]		12
2	YN2013	-	AIA62330.1 [https://www.ncbi.nlm.nih.gov/protein/AIA62330.1]		13,14
2	Cp/Yunnan2011	-	AGC74176.1 [https://www.ncbi.nlm.nih.gov/protein/AGC74176.1]		13,14,15
2	ZC45	-	AVP78031.1 [https://www.ncbi.nlm.nih.gov/protein/AVP78031.1]		16
3	BM48-31/BGR/2008	-	YP_003858584.1 [https://www.ncbi.nlm.nih.gov/protein/YP_003858584.1]		17
3	BtKY72	-	APO40579.1 [https://www.ncbi.nlm.nih.gov/protein/APO40579.1]		18
4	RaTG15	-	UFP05053.1 [https://www.ncbi.nlm.nih.gov/protein/UFP05053.1]	Alias of Ra7909	19
4	RsYN04	-	QWN56242.1 [https://www.ncbi.nlm.nih.gov/protein/QWN56242.1]		20

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