

Supplemental data figure S1:

Sequences of SARS-CoV-2 variants used in this study are aligned using the multiple sequence alignment tool of Benchling. In order to increase surface expression, the SARS-CoV-2 spike protein was modified by a deletion of the furin cleavage site (aa682-685, "RRAR", replaced by a single alanine) and by a C-terminal truncation of the last 17 amino acids, as described in Material & Methods. Mutations in respect to Wuhan strain are highlighted in red.

	1	50
Wuhan	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Alpha (B.1.1.7)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Beta (B.1.351)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Gamma (B.1.1.248)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Delta (B.1.617.2)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Delta plus (B.1.617.2 / AY.1)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Epsilon (B.1.429)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Iota (B.1.526)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Kappa (B.1.617.1)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Lambda (C.37)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	
Omicron (B.1.1.529)	MFVFLVLLPLVSSQCVNLTRTQLPPAYTNSFTRGVYYPDKVFRSSVLHS	

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	51	100
Wuhan	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Alpha (B.1.1.7)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Beta (B.1.351)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Gamma (B.1.1.248)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Delta (B.1.617.2)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Delta plus (B.1.617.2 / AY.1)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Epsilon (B.1.429)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Iota (B.1.526)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Kappa (B.1.617.1)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Lambda (C.37)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	
Omicron (B.1.1.529)	TQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNI	

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	101	150
Wuhan	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Alpha (B.1.1.7)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Beta (B.1.351)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Gamma (B.1.1.248)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Delta (B.1.617.2)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Delta plus (B.1.617.2 / AY.1)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Epsilon (B.1.429)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Iota (B.1.526)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Kappa (B.1.617.1)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Lambda (C.37)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	
Omicron (B.1.1.529)	IRGWIFGTTLDSTQSLILVNNATNVVIVKVECFQFCNDPFLGVYHKNK	

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	151	200
Wuhan	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Alpha (B.1.1.7)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Beta (B.1.351)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Gamma (B.1.1.248)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Delta (B.1.617.2)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Delta plus (B.1.617.2 / AY.1)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Epsilon (B.1.429)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Iota (B.1.526)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Kappa (B.1.617.1)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Lambda (C.37)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	
Omicron (B.1.1.529)	SWMESEFRVYSSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGY	

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	201	250
Wuhan	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Alpha (B.1.1.7)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Beta (B.1.351)	FKIYSKHTPINL--VRGLPQGFSALEPLVDLPIGINITRFQT---LHRSY	
Gamma (B.1.1.248)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Delta (B.1.617.2)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Delta plus (B.1.617.2 / AY.1)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Epsilon (B.1.429)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Iota (B.1.526)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Kappa (B.1.617.1)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	
Lambda (C.37)	FKIYSKHTPINL--VRDLPQGFSALEPLVDLPIGINITRFQTLALHN--	
Omicron (B.1.1.529)	FKIYSKHTPIIVREPEDLPQGFSALEPLVDLPIGINITRFQTLALHRSY	

	251	300
Wuhan	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Alpha (B.1.1.7)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Beta (B.1.351)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Gamma (B.1.1.248)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Delta (B.1.617.2)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Delta plus (B.1.617.2 / AY.1)	LTPGDSSSGITAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Epsilon (B.1.429)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Iota (B.1.526)	LTPGSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Kappa (B.1.617.1)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Lambda (C.37)	-----SSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	
Omicron (B.1.1.529)	LTPGDSSSGWTAGAAAYVGYLQPRTFLLKYNENGTITDAVDCALDPLSE	

	301	350
Wuhan	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Alpha (B.1.1.7)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Beta (B.1.351)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Gamma (B.1.1.248)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Delta (B.1.617.2)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Delta plus (B.1.617.2 / AY.1)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Epsilon (B.1.429)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Iota (B.1.526)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Kappa (B.1.617.1)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Lambda (C.37)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFGEVFNATRFA	
Omicron (B.1.1.529)	TKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCPFDEVFNATRFA	

	351	400
Wuhan	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Alpha (B.1.1.7)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Beta (B.1.351)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Gamma (B.1.1.248)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Delta (B.1.617.2)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Delta plus (B.1.617.2 / AY.1)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Epsilon (B.1.429)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Iota (B.1.526)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Kappa (B.1.617.1)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Lambda (C.37)	SVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSP TKLNDLCFTNVYAD	
Omicron (B.1.1.529)	SVYAWNRKRISNCVADYSVLYNLADFFTFKCYGVSP TKLNDLCFTNVYAD	

	401	450
Wuhan	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Alpha (B.1.1.7)	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Beta (B.1.351)	SFVIRGDEVQRQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Gamma (B.1.1.248)	SFVIRGDEVQRQIAPGQTGHIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Delta (B.1.617.2)	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Delta plus (B.1.617.2 / AY.1)	SFVIRGDEVQRQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Epsilon (B.1.429)	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Iota (B.1.526)	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Kappa (B.1.617.1)	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Lambda (C.37)	SFVIRGDEVQRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGN	
Omicron (B.1.1.529)	SFVIRGDEVQRQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNNLDSKVSGN	

	451	500
Wuhan	YNYLYRLFRKSNLKPFFERDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQ	
Alpha (B.1.1.7)	YNYLYRLFRKSNLKPFFERDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQ	
Beta (B.1.351)	YNYLYRLFRKSNLKPFFERDISTEIQAGSTPCNGVKGFNCYFPLQSYGFQ	
Gamma (B.1.1.248)	YNYLYRLFRKSNLKPFFERDISTEIQAGSTPCNGVKGFNCYFPLQSYGFQ	
Delta (B.1.617.2)	YNYRYRLFRKSNLKPFFERDISTEIQAGSKPCNGVEGFNCYFPLQSYGFQ	
Delta plus (B.1.617.2 / AY.1)	YNYRYRLFRKSNLKPFFERDISTEIQAGSKPCNGVEGFNCYFPLQSYGFQ	
Epsilon (B.1.429)	YNYRYRLFRKSNLKPFFERDISTEIQAGSTPCNGVEGFNCYFPLQSYGFQ	
Iota (B.1.526)	YNYLYRLFRKSNLKPFFERDISTEIQAGNTPCNGVKGFNCYFPLQSYGFQ	
Kappa (B.1.617.1)	YNYRYRLFRKSNLKPFFERDISTEIQAGSTPCNGVQGFNCYFPLQSYGFQ	
Lambda (C.37)	YNYQYRLFRKSNLKPFFERDISTEIQAGSTPCNGVEGFNCYSPQLQSYGFQ	
Omicron (B.1.1.529)	YNYLYRLFRKSNLKPFFERDISTEIQAGNKPNGVAGFNCYFPLRSYSFR	

	501	550
Wuhan	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Alpha (B.1.1.7)	PTYGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Beta (B.1.351)	PTYGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Gamma (B.1.1.248)	PTYGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Delta (B.1.617.2)	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Delta plus (B.1.617.2 / AY.1)	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Epsilon (B.1.429)	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Iota (B.1.526)	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Kappa (B.1.617.1)	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Lambda (C.37)	PTNGVGYQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLTG	
Omicron (B.1.1.529)	PTYGVGHQPYRVVVLSEFLLHAPATVCGPKKSTNLVKNKCVNFNFNGLKG	

	551	600
Wuhan	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Alpha (B.1.1.7)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Beta (B.1.351)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Gamma (B.1.1.248)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Delta (B.1.617.2)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Delta plus (B.1.617.2 / AY.1)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Epsilon (B.1.429)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Iota (B.1.526)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Kappa (B.1.617.1)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Lambda (C.37)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	
Omicron (B.1.1.529)	TGVLTESNKKFLPFQQFGRDIADTTDAVRDPQTLTLEILDITPCSFGGVSVI	

	601	650
Wuhan	TPGTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Alpha (B.1.1.7)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Beta (B.1.351)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Gamma (B.1.1.248)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Delta (B.1.617.2)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Delta plus (B.1.617.2 / AY.1)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Epsilon (B.1.429)	TPGTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Iota (B.1.526)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Kappa (B.1.617.1)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Lambda (C.37)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	
Omicron (B.1.1.529)	TPGTNTSNQVAVLYQGVNCTEVPVAIHADQLTPTWRVYSTGSNVFQTRAG	

	651	700
Wuhan	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPA---SVASQSIIAYTMS	
Alpha (B.1.1.7)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSHAGARSVASQSIIAYTMS	
Beta (B.1.351)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPA---SVASQSIIAYTMS	
Gamma (B.1.1.248)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPA---SVASQSIIAYTMS	
Delta (B.1.617.2)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSRA---SVASQSIIAYTMS	
Delta plus (B.1.617.2 / AY.1)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSRA---SVASQSIIAYTMS	
Epsilon (B.1.429)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPA---SVASQSIIAYTMS	
Iota (B.1.526)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPA---SVASQSIIAYTMS	
Kappa (B.1.617.1)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSRA---SVASQSIIAYTMS	
Lambda (C.37)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSPA---SVASQSIIAYTMS	
Omicron (B.1.1.529)	CLIGAEHVNNSYECDIPIGAGICASYQTQTNSHA---SVASQSIIAYTMS	

	701	750
Wuhan	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Alpha (B.1.1.7)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Beta (B.1.351)	LGVENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Gamma (B.1.1.248)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Delta (B.1.617.2)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Delta plus (B.1.617.2 / AY.1)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Epsilon (B.1.429)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Iota (B.1.526)	LGVENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Kappa (B.1.617.1)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Lambda (C.37)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	
Omicron (B.1.1.529)	LGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYICGDSTE	

	751	800
Wuhan	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Alpha (B.1.1.7)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Beta (B.1.351)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Gamma (B.1.1.248)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Delta (B.1.617.2)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Delta plus (B.1.617.2 / AY.1)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Epsilon (B.1.429)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Iota (B.1.526)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Kappa (B.1.617.1)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Lambda (C.37)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	
Omicron (B.1.1.529)	CSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG	

	801	850
Wuhan	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Alpha (B.1.1.7)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Beta (B.1.351)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Gamma (B.1.1.248)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Delta (B.1.617.2)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Delta plus (B.1.617.2 / AY.1)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Epsilon (B.1.429)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Iota (B.1.526)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Kappa (B.1.617.1)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Lambda (C.37)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD
Omicron (B.1.1.529)	GFNFSQILPDPSKPSKRSFIEDLLFNKVT	LADAGFIKQYGDCLGDIAARD

	851	900
Wuhan	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Alpha (B.1.1.7)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Beta (B.1.351)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Gamma (B.1.1.248)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Delta (B.1.617.2)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Delta plus (B.1.617.2 / AY.1)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Epsilon (B.1.429)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Iota (B.1.526)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Kappa (B.1.617.1)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Lambda (C.37)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF
Omicron (B.1.1.529)	LICAQKFNGLTVLPPLL	TDEMI AQYTSALLAGTITSGWTFGAGAALQIPF

	901	950
Wuhan	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Alpha (B.1.1.7)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Beta (B.1.351)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Gamma (B.1.1.248)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Delta (B.1.617.2)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Delta plus (B.1.617.2 / AY.1)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Epsilon (B.1.429)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Iota (B.1.526)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Kappa (B.1.617.1)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Lambda (C.37)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN
Omicron (B.1.1.529)	AMQMAYRFNGIGV	TQNVLYENQKLIANQFN

	951	1000
Wuhan	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Alpha (B.1.1.7)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Beta (B.1.351)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Gamma (B.1.1.248)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Delta (B.1.617.2)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Delta plus (B.1.617.2 / AY.1)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Epsilon (B.1.429)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Iota (B.1.526)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Kappa (B.1.617.1)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Lambda (C.37)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT
Omicron (B.1.1.529)	QDVVNQNAQALNTLVKQLSSNFGAISSVLNDILSR	LDKVEAEVQIDRLIT

	1001	1050
Wuhan	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Alpha (B.1.1.7)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Beta (B.1.351)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Gamma (B.1.1.248)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Delta (B.1.617.2)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Delta plus (B.1.617.2 / AY.1)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Epsilon (B.1.429)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Iota (B.1.526)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Kappa (B.1.617.1)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Lambda (C.37)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	
Omicron (B.1.1.529)	GRLQSLQTYVTQQLIRAAEIRASANLAATKMSECVLGQSKRVDFCGKGYH	

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	1051	1100
Wuhan	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Alpha (B.1.1.7)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Beta (B.1.351)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Gamma (B.1.1.248)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Delta (B.1.617.2)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Delta plus (B.1.617.2 / AY.1)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Epsilon (B.1.429)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Iota (B.1.526)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Kappa (B.1.617.1)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Lambda (C.37)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	
Omicron (B.1.1.529)	LMSFPQSAPHGTVVFLHVTYVPAQEKNFTTAPAICHGDKAHFPREGVVFVSN	

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	1101	1150
Wuhan	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Alpha (B.1.1.7)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Beta (B.1.351)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Gamma (B.1.1.248)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Delta (B.1.617.2)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Delta plus (B.1.617.2 / AY.1)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Epsilon (B.1.429)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Iota (B.1.526)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Kappa (B.1.617.1)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Lambda (C.37)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	
Omicron (B.1.1.529)	GTHWFTVQRNFYEPQIITTDNTFVSGNCDVIGIVNNTVYDPLQPELDSF	

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	1151	1200
Wuhan	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Alpha (B.1.1.7)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Beta (B.1.351)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Gamma (B.1.1.248)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Delta (B.1.617.2)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Delta plus (B.1.617.2 / AY.1)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Epsilon (B.1.429)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Iota (B.1.526)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Kappa (B.1.617.1)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Lambda (C.37)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	
Omicron (B.1.1.529)	KEELDKYFKNHTSPDVDLGDISGINASVUNIQQEIDRLNEVAKNLNESLI	

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	1201	1250
Wuhan	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Alpha (B.1.1.7)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Beta (B.1.351)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Gamma (B.1.1.248)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Delta (B.1.617.2)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Delta plus (B.1.617.2 / AY.1)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Epsilon (B.1.429)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Iota (B.1.526)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Kappa (B.1.617.1)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Lambda (C.37)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	
Omicron (B.1.1.529)	DLQELGKYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCC	

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	12511258
Wuhan	SCGSCCKF
Alpha (B.1.1.7)	SCGSCCKF
Beta (B.1.351)	SCGSCCKF
Gamma (B.1.1.248)	SCGSCCKF
Delta (B.1.617.2)	SCGSCCKF
Delta plus (B.1.617.2 / AY.1)	SCGSCCKF
Epsilon (B.1.429)	SCGSCCKF
Iota (B.1.526)	SCGSCCKF
Kappa (B.1.617.1)	SCGSCCKF
Lambda (C.37)	SCGSCCKF
Omicron (B.1.1.529)	SCGSCCKF

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