Supplementary Material I

Private mutations identified from 743 samples by Nextclade. The number of mutations found at each position, locality, and biological advantages are shown.

Genome	Locality	Mutations	Advantages
Brazil/BA-58/2021|EPI_ISL_1067 728|2021-01-08	Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**ORF1a:**S1188L; K1795Q **ORF1b:**P314L; E1264D	Not found in the literature
Brazil/BA-50/2021|EPI_ISL_1067 730|2021-01-26	Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**ORF1a:**K202R; K1795Q; P1862L **ORF1b:**P314L; E1264D	Not found in the literature
Brazil/BA-57/2021|EPI_ISL_1067 736|2021-01-23	Brazil, Japan Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**S:**L18F; T20N; P26S **ORF1a:**K202R; S1188L; K1795Q; P1862L **ORF1b:**P314L, E1264D	Decreases the susceptibility to bamlanivimab/etesevi mab monoclonal antibody treatments and neutralization for convalescent and post-vaccination sera
Brazil/BA-51/2021|EPI_ISL_1067 738|2021-01-26	Brazil, Japan Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**S:**L18F; T20N; P26S **ORF1a:**K202R; S1188L; K1795Q; P1862L **ORF1b:**P314L, E1264D	Decreases the susceptibility to bamlanivimab/etesevi mab monoclonal antibody treatments and neutralization for convalescent and post-vaccination sera

Brazil/BA-53/2021|EPI_ISL_1067733|2021-01-23	Brazil, Japan Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru, Turkey	**S:**L18F; T20N; P26S **ORF1a:**T951I; S1188L; K1795Q **ORF1b:**P314L; E1264D	Decreases the susceptibility to bamlanivimab/etesevimab monoclonal antibody treatments and neutralization for convalescent and post-vaccination sera
Brazil/BA-55/2021|EPI_ISL_1067734|2021-01-23	Brazil, Japan Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru, Turkey	**S:**L18F; T20N; P26S; D138Y; R190S; K417T; E484K; N501Y; D614G; H655Y; T1027I; V1176F **ORF1a:**T951I; S1188L; K1795Q **ORF1b:**P314L; E1264D	Decreases the susceptibility to treatments with bamlanivimab/etesevimab monoclonal antibodies, decreases neutralization for convalescent and post-vaccination sera, and increases protein S affinity with ACE2, increasing its transmissibility and also its virulence
Brazil/BA-52/2021|EPI_ISL_1067731|2021-01-26	Brazil, Japan Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**S:**L18F; T20N; P26S **ORF1a:**K202R; S1188L; K1795Q; P1862L **ORF1b:**P314L; E1264D	Decreases the susceptibility to bamlanivimab/etesevimab monoclonal antibody treatments and neutralization for convalescent and post-vaccination sera
	Brazil, Japan, South Africa	**S:**L18F; T20N; P26S; D138Y; R190S; K417T; E484K; N501Y; D614G;	Decreases the susceptibility to

Brazil/BA-49/2021|EPI_ISL_1067737|2021-01-26	Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	H655Y; T1027I; V1176F **ORF1a:**K202R; S1188L; K1795Q; P1862L **ORF1b:P**314L; E1264D	treatments with bamlanivimab/etesevimab monoclonal antibodies, decreases neutralization for convalescent and post-vaccination sera, and increases protein S affinity with ACE2, increasing its transmissibility and also its virulence
Brazil/BA-59/2021|EPI_ISL_1067732|2021-01-18	Brazil, Japan, South Africa, India Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**S:**L18F; T20N; P26S; D138Y; R190S; A222V; K417T; E484K; N501Y; D614G; H655Y; T1027I; V1176F **ORF1a:**S1188L; K1795Q; S2947N **ORF1b:**P314L; E1264D	Decreases the susceptibility to treatments with bamlanivimab/etesevimab monoclonal antibodies, decreases neutralization for convalescent and post-vaccination sera, and increases protein S affinity with ACE2, increasing its transmissibility and also its virulence
Brazil/BA-56/2021|EPI_ISL_1067735|2021-01-23	Brazil, Japan Brazil, Japan, USA, Italy, France, Netherlands, South Korea, Peru	**S:**L18F; T20N; P26S **ORF1a:**S1188L; K1795Q; E3947T **ORF1b:**P314L; E1264D	Decreases the susceptibility to bamlanivimab/etesevimab monoclonal antibody treatments and neutralization for convalescent and post-vaccination sera

Brazil/BA-LACEN-BA474/2021|EPI_ISL_3635671|2021-07-13	Brazil, India	**Reversions:** T28877A; C28878G; A28881G; A28882G; C28883G; A29834T	Not found in the literature
		Unlabeled private mutations: G680T; C6730T; C10156T; T10742C; T22738C; C22747T	
Brazil/BA-LACEN-148/2021|EPI_ISL_1583676|2021-03-05	Brazil, India	**Reversions:** T28877A; C28878G; A28881G; A28882G; C28883G	Not found in the literature
		Unlabeled private mutations: C12823T; C19662T; C21254T; T22738C	
Brazil/BA-LACEN-BA198/2020|EPI_ISL_3631208|2020-09-09	Brazil, Africa, Europe, South America	**Reversions:** T3037C; T14408C	Not found in the literature
		Labeled private mutations: C2749T; C12778T	
		Unlabeled private mutations: T9976C; A10760G; T12592C; T16370C; C17676T; G23309C; A23357G; G28429A	

Brazil/BA-FIOCRUZ-PVM54698/2021|EPI_ISL_2663286|2021-03-04	Bahia, Brazil	**Labeled private mutations:** C12053T; C22227T; C29311T	Not found in the literature
		Unlabeled private mutations: G1659T; T2827A; A3706T; G4720A; C11300T; G11743T; G18040T; C19170T; T19605C; G21770T; A22278G; T24079C; G25947T; C26873T; G27506T; C27575T; A28084G; C29095T; C29614T; T29760C	
Brazil/BA-LACEN-BA303/2021|EPI_ISL_3255132|2021-05-17	Brazil, India	**Labeled private mutations:** C6402T; G21786T; C21846T; G21987A; A23063T; C25416T; T26767C; T27384C; C28253T; G28916T	Not found in the literature
		Unlabeled private mutations: C1912T; G5180A; C9491T; G9929A; G17019T; T21568A; C21602A; G23593T; A24369G; C24904T; G25906T; C27208T; C27978T; G28141C; A28254C; A28272G; T28877A; C28878G; A28881G; A28882G; C28883G	

Supplementary material II

Representation of epitope sequences and their HLA alleles among the analyzed SARS-CoV-2 genomes.

Protein	Protein size	Peptide length	HLA Type	Peptide sequences
ORF1ab	21.290	9-10	HLA-A*02	VMVELVAEL, TLSEQLDFI, FVFPLNSII, GLNDNLLEI, KLNEEIAII, FISTCACEI, KLVNKFLAL, MVTNNTFTL, PQLEMELTPV, FITESKPSV, VQEGVLTAV, ILGTVSWNL, YLATALLTL, YVDNSSLTI, LATHGLAAV, KLINIIIWFL, IIWFLLLSV, SLIYSTAAL, YLNSTNVTI, ILLLDQALV, YLITPVHVM, KACPLIAAV, FVVPGLPGT, FLPRVFSAV, GVFCGVDAV, LLTNMFTPL, FLMSFTVLC, KVEGCMVQV, FLNGSCGSV, FLNRFTTTL, LLLTILTSL, FLLPSLATV, KLKDCVMYA, SMWALIISV, KLWAQCVQL, KMVSLLSVL, SLLSVLLSM, MLFTMLRKL, FVLALLSDL, LQAGNATEV, YLASGGQPI, NLLKDCPAV, TMADLVYAL, LLMPILTLT, FVNEFYAYL, RILGAGCFV, LMIERFVSL, YTACSHAAV, YVFCTVNAL, KVITGLHPT, TQAPTHLSV, NLSDRVVFV, CQVHGNAHV, AIMTRCLAV, ALLADKFPV, LLADKFPVL, MMISAGFSL, SLENVAFNV, SQMEIDFLEL, FLELAMDEFI, SQLGGLHLL, FELEDFIPM, MLWCKDGHV, TLIGDCATV, WQTGDFVKA, TVYEKLKPV, FELDERIDKV, TTIQTIVEV, YLKLTDNVYI, LLSAGIFGA, LLHKPIVWHV, FVVPGLPGTI, IVAGGIVAI, FLMSFTVLCL, KLRSDVLLPL, IQPGQTFSV, TTLNDFNLV, FMCVEYCPI, NTLQCIMLV, KMSDVKCTSV, MMILSDDAV, KQGDDYVYL, TLEPEYFNSV, YCQVHGNAHV, SQLGGLHLLI, ILSPLYAFA, WLTNIFGTV,

AVIKTLQPV, MQVESDDYI, RTIKVFTTV, YPQVNGLTSI, WLMWLIINL, KLIEYTDFA, FTLKNTVCTV, YNLLKDCPAV, LVLSVNPYV, TLVPQEHYV, LMYKGLPWNV, KNLSDRVVFV, FELTSMKYFV, QVVSDIDYV, FLALCADSI, FLTENLLLYI, YMPYFFTLLL, FGLVAEWFLA, FISNSWLMWL, KVTLVFLFV, FKLSYGIATV, YVYNPFMIDV, KQLPFFYYS, KMFDAYVNT, KQLIKVTLV, NLLTNMFTPL, YSFLPGVYSV, YLTNDVSFL, NVLAWLYAA, AVLDMCASL, ILTSLLVLV, FLCLFLLPSL, FLARGIVFM, FCLLNRYFRL, VLSFCAFAV, SVFNICQAV, KLVLSVNPYV, KLSYGIATV, LKQLPFFYYS, KQVVSDIDYV, TQLCQYLNTL, WLPTGTLLV, SLFDMSKFPL, RLIDAMMFT, GLVAEWFLA, SWLMWLIINL, KLIEYTDFAT, VLAWLYAAV, TQWSLFFFL, FLYENAFLPF, TLMNVLTLV, FSVAALTNNV, YNLWNTFTRL, YLVQQESPFV, YVWKSYVHV, FLAHIQWMV, VMCGGSLYV, KLMGHFAWWT, LMWLIINLV, WTLMNVLTLV, AALLADKFPV, YLNTLTLAV, VMAYITGGV, CYLATALLTL, FVMMSAPPA, QLFFSYFAV, WLMWLIINLV, YVWKSYVHVV, LLFLMSFTV, NVLAWLYAAV, SMWALIISVT, TVLSFCAFAV, YQNNVFMSEA, MLDMYSVML, QLEMELTPVV, QMAPISAMV, TLMNVLTLVY, ISMWALIISV, YTMADLVYAL, GLALYYPSA, ILFTRFFYV, FTYASALWEI, MVMCGGSLYV, LFLLPSLATV, VVMAYITGGV, RSLPGVFCGV, TLLFLMSFTV, YLTNDVSFLA, WVMRIMTWL, YKLNVGDYFV, YLDAYNMMI, ILFTRFFYVL, VQMAPISAMV, YLTFYLTNDV, FLAHIQWMVM, FLLPSLATVA, MMVTNNTFTL, YMPYFFTLL, YILFTRFFYV, STQWSLFFFL, YMPASWVMRI, TPVYSFLPGV, YTMADLVYA, SLFFFLYENA, AMSAFAMMFV, YTPHTVLQAV, QYLNTLTLAV, LYLDAYNMMI, MSAFAMMFV, MQLFFSYFA, YIFFASFYYV, SFLAHIQWMV, ATVAYFNMV, IQWMVMFTPL, NTFSSTFNV, KYTMADLVYA, YLDAYNMMIS, MQLFFSYFAV, WMVMFTPLV, QWMVMFTPLV

| HLA-A*11 | SLVPGFNEK, GTCGLVEVEK, SEQLDFIDTK, QMCLSTLMK, FSYVGCHNK, LLMPLKAPK, MVTNNTFTLK, RIDKVLNEK, HVVGPNVNK, SDIDITFLK, TQLGIEFLK, VMYMGTLSY, TTIKPVTYK, VVCTEIDPK, TSNSFDVLK, VVENPTIQK, RVCTNYMPY, ASMPTTIAK, YIFFASFYY, SSTCMMCYK, GSIHLYFDK, QVVNVVTTK, GAMDTTSYR, HSMQNCVLK, SMQNCVLKLK, TSLSGFKLK, SIDAFKLNIK, SMQGAVDINK, ASGNLLLDK, TVKPGNFNK, MTNRQFHQK, HLMGWDYPK, CSLSHRFYR, MVMCGGSLY, MSYYCKSHK, KLFAAETLK, YVFTGYRVTK, VSALVYDNK, SAQCFKMFY, CVDIPGIPK, NVAFNVVNK, SQDLSVVSK, NQMCLSTLMK, VNINIVGDFK, TSAFVETVK, VETVKGLDYK, RVVRSIFSR, VTNNTFTLK, VSDIDITFLK, LTAVVIPTK, TISLAGSYK, ALILAYCNK, TTTIKPVTYK, TTIAKNTVK, NSSTCMMCYK, VVTTKIALK, STDTCFANK, TTFDSEYCR, MVDTSLSGFK, TMLFTMLRK, GTSTDVVYR, AASGNLLLDK, QTVKPGNFNK, FAVSKGFFK, DKSAGFPFNK, KSAGFPFNK, SSNVANYQK, VVNARLRAK, TVSALVYDNK, SAQCFKMFYK, AQCFKMFYK, VQMLSDTLK, AANTVIWDYK, CSMTDIAKK, KSQDLSVVSK, TEISFMLWCK, YICGFIQQK, QTPFEIKLAK, STSAFVETVK, AVFDKNLYDK, SDIDITFLKK, STQLGIEFLK, KASMPTTIAK, ASTDTCFANK, TANPKTPKYK, AAMQRKLEK, QTMLFTMLR, VIPDYNTYK, TVCTVCGMWK, KTNCCRFQEK, AVAKHDFFK, SICSTMTNR, SVVNARLRAK, SIINNTVYTK, GVCSMTDIAK, KMQRMLLEK, IISDMYDPK, AQNSVRVLQK, NIFGTVYEK, GLLMPLKAPK, NVYLAVFDK, GARFYFYTSK, TLSYEQFKK, ASMPTTIAKN, STCMMCYKR, STFNVPMEKL, VDTANPKTPK, ALAYYNTTK, LVASIKNFK, FSSNVANYQK, YSYATHSDK, VSDIDYVPLK, LIISDMYDPK, VAYRKVLLRK, TNIFGTVYEK, QTFFKLVNK, VTHSKGLYRK, TNVYLAVFDK, VLTAVVIPTK, GTLSYEQFKK, YILFTRFFY, SGAMDTTSYR, KVKYLYFIK, VAGFAKFLK, AVKTQFNYYK, KTQFNYYKK, SSYSLFDMSK, VVNAANVYLK, LVSSFLEMK, ATAEAELAK, GVYSVIYLY, ALCTFLLNK, MQTMLFTMLR, VVIPDYNTYK, |

KVAGFAKFLK, TMTNRQFHQK, ASQGLVASIK,
KLVSSFLEMK, AIMQLFFSY, NSQGLLPPK,
ATVVIGTSK, LTSMKYFVK, FVFPLNSIIK,
VQTFFKLVNK, TVIEVQGYK, SSFLEMKSEK,
AGFSLWVYK, ATNNLVVMAY, AALCTFLLNK,
MNSQGLLPPK, QTMLFTMLRK,
VKTQFNYYKK, AVMYMGTLSY, FASFYYVWK,
CAMRPNFTIK, NVAFELWAK, AMDEFIERYK,
AVLDMCASLK, VVYRGTTTYK, SAGFSLWVYK,
VNVAFELWAK, ADQAMTQMYK,
AISDYDYYR, GVAMPNLYK, LMNVLTLVYK,
PTSFGPLVRK, PGVAMPNLYK, TTDPSFLGR,
SAFAMMFVK, ITPVHVMSK, AVDAAKAYK,
LITPVHVMSK, GTLSYEQFK, MYIFFASFYY,
VMCGGSLYVK, HLYLQYIRK, MGTLSYEQFK,
AYILFTRFFY, AAIMQLFFSY, ATVAYFNMVY,
RMYIFFASFY, SAFAMMFVKH,
MSAFAMMFVK, SVIYLYLTFY

HLA-A*24	SYGADLKSF, YWVPRASANI, TFFKLVNKF,
	GYKSVNITF, WSMATYYLF, LYDKLVSSF,
	YYTSNPTTF, YYTSNPTTFH, YYHTTDPSF,
	YYKKDNSYF, DYKHYTPSF, ATYKPNTWCI,
	TYKPNTWCI, TNYMPYFFTL, NYMPYFFTL,
	KMFDAYVNTF, VFLFVAAIF, DYYRSLPGVF,
	YYRSLPGVF, VYSVIYLYL, FYLTNDVSF,
	FWITIAYII, STKHFYWFF, LYQPPQTSI,
	RFTTTLNDF, VQSTQWSLF, VYMPASWVM,
	MFLARGIVF, RYFRLTLGV, RYMNSQGLL,
	YYNTTKGGRF, IYNDKVAGF, YFVVKRHTF,
	NFNKDFYDF, YYRYNLPTM, FYGGWHNML,
	AYLRKHFSM, VYIGDPAQL, MYKGLPWNV,
	DYVYNPFMI, YSYATHSDKF, SYATHSDKF,
	LYLDAYNMM, DYTEISFML, KYTQLCQYL,
	PYNMRVIHF, IQLSSYSLF, AYTRYVDNNF,
	SYLFQHANL, EYKGPITDVF, TYPSLETIQI,
	LFFSYFAVHF, YFNKKDWYDF, IDYTEISFML,
	PYPNASFDNF, ISTKHFYWFF, VQSTQWSLFF,
	DYTEISFMLW, VPYNMRVIHF, RQWLPTGTLL,
	QGYKSVNITF, IMQLFFSYF, NYLKRRVF,
	LYENAFLPFA, RYFKYWDQTY, VYKQFDTYNL,
	LYKLMGHFAW, IDYKHYTPSF, AYILFTRFF,
	HFISNSWLMW, TYERHSLSHF, YYSQLMCQPI,
	IYLYLTFYL, QWMVMFTPL, MVYMPASWVM,
	SYFVVKRHTF, YAYLRKHFSM, FDYVYNPFMI,

YYHTTDPSFL, TYKPNTWCIR, RMYIFFASF, YYRSLPGVFC, LYENAFLPF, YYGNALDQAI, RYMNSQGLLP, VFPPTSFGPL, SYSLFDMSKF, VYQCAMRPNF, KFYGGWHNML, VYRGTTTYKL, EWSMATYYLF, VYYTSNPTTF, NYYKKDNSYF, RYVLMDGSII, TYASALWEI, EYYHTTDPSF, YMGTLSYEQF, NYMPYFFTLL, MYASAVVLL, WSMATYYLFD, VYMPASWVMR, VWTLMNVLTL, YYVWKSYVHV, TFYLTNDVSF, SNYLKRRVVF, STQWSLFFF, RYNLPTMCDI, FFASFYYVW, SVIYLYLTF, RYLALYNKY, TYKLNVGDYF, YYLFDESGEF, SFLPGVYSVI, SWVMRIMTW, EYADVFHLYL, IYSTAALGVL, AYNMMISAGF, VRMYIFFASF, IAMSAFAMMF, SYELQTPFEI, TFTYASALW, LAYILFTRFF, VIYLYLTFYL, TYASALWEIQ, RLYLDAYNMM, VVAFNTLLF, IFFASFYYVW, AYVNTFSSTF, YSVIYLYLTF, VMYASAVVLL, MYASAVVLLI

| | HLA-A*26 | ETSWQTGDF, QIVESCGNF, EIKESVQTF, FVTHSKGLY, YLFDESGEF, EVNSFSGYL, EDIQLLKSAY, EIPKEEVKPF, FLTENLLLY, ETKAIVSTI, GVVDYGARF, EAARYMRSL, SSPDAVTAY, ETISLAGSY, TQVVDMSMTY, QVVDMSMTY, EAVMYMGTL, CASEYTGNY, YTGNYQCGHY, NTVKSVGKF, STNVTIATY, DSAEVAVKM, YVNTFSSTF, YTPSKLIEY, QTFSVLACY, LVYCFLGYF, STVLSFCAF, FAVDAAKAY, NTVCTVCGM, TVCGMWKGY, DTLKEILVTY, ENPDILRVY, FTEERLKLF, FVVEVVDKY, TVVIGTSKF, DVDTDFVNEF, YLRKHFSMM, AVVCFNSTY, FVSLAIDAY, LTNDNTSRY, HVISTSHKL, CANGQVFGLY, HYVRITGLY, EFSSNVANY, FKVNSTLEQY, ETTADIVVF, EIVDTVSAL, MTYRRLISM, EAIRHVRAW, DTYNLWNTF, ETICAPLTVF, EAVKTQFNY, EIAIILASF, ITILDGISQY, EIVKFISTC, EGVVDYGARF, EIDPKLDNYY, GLVAEWFLAY, TVKNGSIHLY, DSAEVAVKMF, DAVNLLTNM, YIICISTKHF, DTANPKTPKY, CTVCGMWKGY, VVIGTSKFY, WVYKQFDTY, DSKEGFFTY, EEIAIILASF, ETAQNSVRV, DTVIEVQGY, GVVDYGARFY, DAVTAYNGY, IETISLAGSY, DAVNLLTNMF, |

MLVYCFLGYF, EAFEKMVSL, FAIGLALYY,
HSIGFDYVY, EAVKTQFNYY, AVKTQFNYY,
DLYKLMGHF, EAFLIGCNY, EIKESVQTFF,
DTVIEVQGYK, TIEVNSFSGY, DVFYKENSY,
YVLGLAAIM, EVAVKMFDAY, LIISVTSNY,
MVVIPDYNTY, DVVYRAFDIY, DIYNDKVAGF,
FVVEVVDKYF, MLTNDNTSRY,
FDTYNLWNTF, NTNPIQLSSY, DDTVIEVQGY,
EVARDLSLQF, ESSAKSASVY, MLVYCFLGY,
LFVVEVVDKY, DAVVCFNSTY, HTPAFDKSAF,
EVNEFACVV, ETISLAGSYK, QVVDMSMTYG,
SVPWDTIANY, EVVDKYFDCY, EIAIILASFS,
DVRETMSYL, DTIANYAKPF, EVARDLSLQ,
IVVTCLAYY, DVRETMSYLF, TVAYFNMVY,
TVVIGTSKFY, HFAIGLALYY, EAFEKMVSLL,
EMVMCGGSLY, ITVNVLAWLY,
DIVKTDGTLM, EYADVFHLY, FAIGLALYYP,
EIVDTVSALV, MTYRRLISMM, DFVNEFYAY,
DVFHLYLQY, ELTGHMLDM, EAARVVRSIF,
ALIISVTSNY, DTTEAFEKM, DFVNEFYAYL,
ELTGHMLDMY, FLPGVYSVIY, TTYKLNVGDY,
TTDPSFLGRY, AAISDYDYY, STAALGVLM,
HVVAFNTLLF, TVAYFNMVYM, DVFHLYLQYI

HLA-A*31	CMMCYKRNR, CYKRNRATR, MTQMYKQAR, VAKHDFFKFR, RVYANLGER, RNYVFTGYR, KYLPIDKCSR, KGLPWNVVR, RTCCLCDRR, AVHECFVKR, RLIIRENNR, VAYRKVLLR, KTILRKGGR, KAIVSTIQR, GMPSYCTGYR, LSTFISAAR, KFLKTNCCR, KTVQFCDAMR, TTCCSLSHR, RLYECLYRNR, KYFVKIGPER, VTHSKGLYR, SSTCMMCYKR, HFVNLDNLR, AMTQMYKQAR, NRNYVFTGYR, RYPANSIVCR, WVLNNDYYR, CSLSHRFYRL, ARVVRSIFSR, KTPKYKFVR, LSWEVGKPR, MCYKRNRATR, RWVLNNDYYR, TCMMCYKRNR, LFCLLNRYFR, CCSLSHRFYR, LSYGIATVR, TYNLWNTFTR, MSKFPLKLR, AMRPNFTIK, VAFELWAKR, KLSYGIATVR, VYRGTTTYK, YMPASWVMR, FVNEFYAYLR, AMPNLYKMQR, AAISDYDYYR, RYLALYNKYK, IFFASFYYV
HLA-A*33	ELEGIQYGR, DTKRGVYCCR, STTTNIVTR, NIVTRCLNR, LLQLCTFTR, DFDTWFSQR,

LYAAVINGDR, TVYDDGARR, MVPHISRQR,
TVQFCDAMR, YAISAKNRAR, DYGDAVVYR,
DMFLGTCRR, DVEGCHATR, YFVKIGPER,
NTVIWDYKR, QVDLFRNAR, FVTHSKGLYR,
ESKPSVEQR, TTEMLAKALR, TFTRSTNSR,
TFISDEVAR, NGDFLHFLPR, NFYGPFVDR,
DFYDFAVSK, HTTCCSLSHR, TVREVLSDR,
HVGEIPVAYR, NTKHSSGVTR, TLLSLREVR,
CTFTRSTNSR, MPSYCTGYR, EFDRDAAMQR,
YYNTTKGGR, MFITREEAIR, YNLWNTFTR,
LAMDEFIER, DMSKFPLKLR, VLSTFISAAR,
SDLQDLKWAR, ELKINAACR, NTYLEGSVR,
FYWFFSNYLK, VTFQSAVKR, LYAFASEAAR,
ETMSYLFQH, FCLLNRYFR, DFAVSKGFFK,
FIKGLNNLNR, EFLTRNPAWR, YAFASEAAR,
FGADPIHSLR, LALYYPSAR, DNLKTLLSLR,
HLSWEVGKPR, YWFFSNYLK, VTTVMFLAR,
DALFAYTKR, WFFSNYLKR, VVTTVMFLAR,
MPNLYKMQR, SIIKTIQPR, FFSNYLKRR,
NVAFELWAKR, LTLAVPYNMR, TLAVPYNMR,
NSIIKTIQPR, YWFFSNYLKR, HTTDPSFLGR,
WFFSNYLKRR, VFHLYLQYIR, QMAPISAMVR,
TMADLVYALR, MADLVYALR

| | HLA-B*07 | LPVLQVRDVL, VPHVGEIPV, IPVAYRKVL, CPACHNSEV, APLLSAGIF, APYIVGDVV, KPVETSNSF, KPNELSRVL, RANNTKGSL, VPMEKLKTL, TPRDLGACI, IPLTTAAKL, FPKSDGTGTI, VPHISRQRL, MPILTLTRAL, FPPTSFGPL, RPPLNRNYVF, IPARARVECF, RPQIGVVREF, RNPAWRKAVF, NPAWRKAVF, SPYNSQNAV, HPTQAPTHL, KPRSQMEIDF, FPLKLRGTA, KPANNSLKI, KKPNELSRVL, MTPRDLGACI, MVPHISRQRL, RPPLNRNYV, KPTETICAPL, TPSFKKGAKL, QPGQTFSVL, LPYPDPSRIL, NPAWRKAVFI, TPAFDKSAF, KPREQIDGYV, IPVAYRKVLL, YCPACHNSEV, LPVNVAFEL, FPLKLRGTAV, NVPMEKLKTL, IPLMYKGLPW, KPASRELKV, APHGHVMVEL, LPFAMGIIAM, VPANSTVLSF, MPYFFTLLL, RAMPNMLRIM, SPSGVYQCAM, RPNFTIKGSF, TPAFDKSAFV, KFPLKLRGTA, MPNLYKMQRM, TPHTVLQAV, APISAMVRM, LPSLATVAYF, MPASWVMRI, MPASWVMRIM |

HLA-B*15	NQMCLSTLM, RTIAFGGCVF, TIAFGGCVF, ASFSASTSAF, LQKAAITIL, LTNIFGTVY, LASHMYCSF, YLKLTDNVY, ALNKATNNAM, LLKSAYENF, RTNVYLAVF, NLYDKLVSSF, VSSPDAVTAY, FLKRGDKSVY, MSMTYGQQF, YLVQQESPF, LGMPSYCTGY, VQMAPISAM, SSAKSASVY, QLIKVTLVF, RDIASTDTCF, RTTNGDFLHF, AIVVTCLAY, VMFTPLVPF, YQCAMRPNF, AMSAFAMMF, ILMTARTVY, LLAKDTTEAF, LAKDTTEAF, RQALLKTVQF, LVYAADPAM, NLDKSAGFPF, LQHRLYECLY, HMLDMYSVM, KLVLSVNPY, LTKGTLEPEY, YQVNGYPNMF, FMIDVQQWGF, SQAWQPGVAM, GQINDMILSL, KSYELQTPF, CNQMCLSTLM, KSILSPLYAF, KEIKESVQTF, GQSTQLGIEF, RVCTNYMPYF, LSVCLGSLIY, LLIRKSNHNF, LVQSTQWSLF, LILMTARTVY, LMNVLTLVY, FLGYFCTCYF, HKLVLSVNPY, LQNYGDSATL, KQIVESCGNF, EQKSILSPLY, AQYELKHGTF, KQLIKVTLVF, FVRIQPGQTF, VVRQCSGVTF, LQCIMLVYCF, ATLQAIASEF, ATTAYANSVF, LVKQGDDYVY, FPLCANGQVF, LQEFKPRSQM, HSYGADLKSF, LPQNAVVKIY, WLTNIFGTVY, KLVSSFLEM, SSAKSASVYY, LVFLFVAAIF, LTQYNRYLAL, FSGAMDTTSY, IQPGQTFSVL, ILSDDAVVCF, RLMKTIGPDM, VTIDYTEISF, MMSAPPAQY, LMSNLGMPSY, RVVTTFDSEY, FGEYSHVVAF, GQTFSVLACY, VLYYQNNVF, LMKTIGPDMF, KLASHMYCSF, LWVYKQFDTY, ADLYKLMGHF, LASHMYCSFY, VLMDGSIIQF, FSNSGSDVLY, MMFVKHKHAF, IMLVYCFLGY, LPQLEQPYVF, LVQQESPFVM, YSGVVTTVMF, FMCVEYCPIF, SVLYYQNNVF, LAMDEFIERY, TLMIERFVSL, MVMFTPLVPF, TQYNRYLALY, VMFLARGIVF, FSSLPSYAAF, AVVYRGTTTY, ISAGFSLWVY, NMMVTNNTF, GIIAMSAFAM, LVQMAPISAM, ASFYYVWKSY, LLFLMSFTVL, AMGIIAMSAF, MLRIMASLVL, TQWSLFFFLY, LLVYAADPAM, MMISAGFSLW, LLPSLATVAY, VMMSAPPAQY, AMVRMYIFF, AIMQLFFSYF, ASEFSSLPSY, ADLVYALRHF

HLA-B*35	HVGEIPVAY, YPVASPNEC, YSLRLIDAM, LATNNLVVM, TPVCINGLM, VVVNAANVY, LVSDIDITF, VPTDNYITTY, YPGQGLNGY, YGQQFGPTY, YVLPNDDTL, FNPPALQDAY, YPNASFDNF, VPWDTIANY, MSNLGMPSY, VAVKMFDAY, LPFKLTCAT, FSAVGNICY, SIIQFPNTY, VVTTFDSEY, FSNSGSDVL, HVICTSEDM, TANPKTPKY, FFFLYENAF, MGIIAMSAF, MFVKHKHAF, MCVEYCPIF, MADQAMTQM, VVIPDYNTY, TCDGTTFTY, CTDDNALAY, TGTSTDVVY, AALTNNVAF, FAQDGNAAI, SSGDATTAY, YASQGLVAS, HPNQEYADVF, FVLTSHTVM, YPTLNISDEF, HVASCDAIM, IPMDSTVKNY, QAWQPGVAM, VAMPNLYKM, IAFGGCVFSY, LAVFDKNLY, HPDSATLVS, NPPALQDAY, LAAVNSVPW, DASGKPVPY, IIAMSAFAM, VVYRGTTTY, IPGIPKDMTY, YPANSIVCRF, LALGGSVAI, MPVCVETKA, NALDQAISM, MSYEDQDAL, FAWWTAFVT, LPLTQYNRY, IAMSAFAMM, MPLSAPTLV, NTLTLAVPY, FPVLHDIGN, NPHLMGWDY, LATVAYFNM, AFAVDAAKAY, QPITNCVKM, LPSLATVAY, MADQAMTQMY, FAVDAAKAYK, MPNMLRIMA, MAAYVDNSS, LPFAMGIIA, LAAIMQLFF, TPVYSFLPG, LAHIQWMVM, LALYNKYKY, NAAISDYDY, MAPISAMVRM, LPSYAAFAT, LPGVYSVIY
HLA-B*40	FEIKLAKKF, GECPNFVFPL, CEFCGTENL, SEVGPEHSL, AEYHNESGL, KEKVNINIV, GDFKLNEEI, GEQKSILSPL, CEIVGGQIV, EETGLLMPL, GETLPTEVL, TEVLTEEVV, LEQPTSEAV, NEKCSAYTV, SELLTPLGI, MELTPVVQT, HEVLLAPLL, REMLAHAEET, IELKFNPPAL, GEAANFCAL, VETSNSFDV, REGYLNSTNV, AELAKNVSL, REVGFVVPG, LEGSVAYESL, SEAGVCVST, GEYSHVVAF, FEEAALCTF, LEGNFYGPF, YENAFLPFAM, SEFDRDAAM, KEILVTYNC, SEAKCWTET, HEFCSQHTM, REVLSDREL, RELHLSWEV, LEPEYFNSV, SEYDYVIFT, EELFYSYAT, QEFKPRSQM, MEIDFLELAM, REQIDGYVM, HEHEIAWYT, VESCGNFKV, REETGLLMPL, SEAVEAPLV, LEFGATSAAL, LEMELTPVV,

YENFNQHEV, YENFNQHEVL, QEGVLTAVV,
YEQFKKGVQI, YELKHGTFT, YKENSYTTTI,
VETSNSFDVL, IEYTDFATS, FEEAALCTFL,
ADIVVFDEI, REFLTRNPA, VDWTIEYPI,
IEYPIIGDEL, IEELFYSYA, LENVAFNVV,
TETICAPLTV, KEGQINDMI, WEIVKFIST,
TENLLLYIDI, IELKFNPPA, VEAVMYMGTL,
YELKHGTFTC, SEYKGPITDV, AEVAVKMFDA,
REVGFVVPGL, VELKHFFFA, DRELHLSWEV,
WEVGKPRPPL, CEKALKYLPI, AEIVDTVSAL,
REAVGTNLPL, KEGFFTYIC, SEYTGNYQC,
KENSYTTTI, RELKVTFFP, AEAELAKNV,
EEAALCTFL, VEYCPIFFI, REFLTRNPAW,
FENKTTLPV, LELAMDEFI, WEIVKFISTC,
KESVQTFFKL, MELTPVVQTI, QHEVLLAPLL,
QIELKFNPPA, IEYTDFATSA, KEILVTYNCC,
SVELKHFFFA, HEFCSQHTML, SLENVAFNVV,
TENLLLYID, GEVITFDNL, AGEAANFCAL,
YERHSLSHFV, MEKLKTLVA, FEKMVSLLSV,
AEIVDTVSA, GEIPVAYRKV, TEVNEFACV,
GEFKLASHM, HEVLLAPLLS, RELKVTFFPD,
EAELAKNVSL, EEAALCTFLL, YENAFLPFA,
QEYADVFHL, MDEFIERYKL, IEVQGYKSV,
TEVNEFACVV, GEAANFCALI, MEKLKTLVAT,
AELAKNVSLD, VEYCPIFFIT, YEAMYTPHT,
VREFLTRNPA, MEIDFLELA, NEFACVVADA,
LEMELTPVVQ, HEGKTFYVL, QESPFVMMSA,
YEAMYTPHTV, GEFKLASHMY, CVEYCPIFFI,
TEAFEKMVSL, EETFKLSYGI, RELHLSWEVG,
QMEIDFLELA, YELQTPFEI, DEWSMATYYL,
SHEGKTFYVL, HEGKTFYVLP, IERFVSLAI,
SGEFKLASHM, FEYYHTTDPS, LEQYVFCTV,
VEAFEYYHTT, SEFSSLPSY, SEMVMCGGSL,
TERSEKSYEL, MIERFVSLAI, NQEYADVFHL,
QEYADVFHLY, TLEQYVFCTV, YELQTPFEIK,
SEFSSLPSYA, NEYRLYLDA, ANEYRLYLDA

HLA-B*44	REHEHEIAW, KEGATTCGY, VETVKGLDY, YEKLKPVLDW, NEFACVVAD, EEEFEPSTQY, YEYGTEDDY, REVRTIKVF, TELEPPCRF, AESHVDTDL, FELTSMKYF, KENDSKEGF, CREHEHEIAW, EEIAIILAS, EEFEPSTQY, IEVNSFSGY, QEILGTVSW, VENPDILRVY, EERLKLFDRY, EEAIRHVRAW, GFELTSMKYF, REHEHEIAWY, EEFEPSTQYE, IEVNSFSGYL,

		KQEILGTVSW, TEIDPKLDNY, SEDMLNPNY, DEFSSNVANY, HECFVKRVDW, QEILGTVSWN, VENPHLMGW, SEAFLIGCNY, MDNSPNLAW, YTEISFMLWC, DEWSMATYY, DEISMATNY, FDEISMATNY, RETMSYLFQH, YEDQDALFAY, DVENPHLMGW, DEISMATNYD, VENPHLMGWD, SEAARVVRSI, LDEWSMATYY, GEYSHVVAFN, NEYRLYLDAY, ADVFHLYLQY
	HLA-B*46	FASEAARVV, KSVNITFEL, ITFDNLKTL, GTFTCASEY, TAFGLVAEW, VARDLSLQF, YTNDKACPL, IAAVITREV, FLHFLPRVF, TLQCIMLVY, SSLPSYAAF, RAMPNMLRI, VGSDNVTDF, ITHDVSSAI, VSIINNTVY, TTLPVNVAF, YSLFDMSKF, YSGVVTTVM, KSEFDRDAAM, YASQGLVASI, TAAKLMVVI, FSTVFPPTSF, TAFGLVAEWF, NYSGVVTTVM, IGFDYVYNPF, VAIVVTCLAY, KMADQAMTQM, DLATNNLVVM, SAMVRMYIF, LAKDTTEAFE, YLFDESGEFK, EKSYELQTPF, VMFTPLVPFW, KSYELQTPFE
	HLA-B*51	LPVLQVRDV, MAYITGGVV, SAFYILPSI, FPDLNGDVV, LAWLYAAVI, EPLTQDHVDI, FAYTKRNVI, CPAEIVDTV, LPKGIMMNV, YLPQNAVVKI, LPTEVLTEEV, FACVVADAV, IPKEEVKPFI, NPTDQSSYI, VPYCYDTNVL, TPGSGVPVV, YLPIDKCSRI, LPWNVVRIKI, VPVSIINNTV, LPQNAVVKI, MPLKAPKEI, MPLKAPKEII, LKPANNSLKI, INPTDQSSYI, PVPYCYDTNV, VPYCYDTNV, YLPYPDPSRI, LPIDKCSRI, LPETTADIV, SPFELEDFI, LNPNYEDLLI, VPQEHYVRI, YPIIGDELKI, LALCADSII, LMPLKAPKEI, MPTTIAKNTV, LGPLSAQTGI, MPILTLTRA, LVPQEHYVRI, LPIDKCSRII, TPVVQTIEV, MPVCVETKAI, FPNTYLEGSV, TPKYKFVRI, FPLCANGQV, LAVPYNMRV, LTPVVQTIEV, VPMEKLKTLV, LPLTQYNRYL, VLAWLYAAVI, SPNLAWPLI, LPYPDPSRI, EAMYTPHTV, ISPYNSQNAV, FLALCADSII, VMPLSAPTLV, LALCADSIII, FPLNSIIKTI, MPLSAPTLVP, LALYYPSARI, TALLTLQQI, FSYFAVHFI, FPPTSFGPLV,

		VLPQLEQPYV, LPQLEQPYV, YASAVVLLI, MPYFFTLLLQ, MVYMPASWV
	HLA-B*52	VQLSLPVLQV, CGYLPQNAV, LDYKAFKQI, NQTTTIQTI, SAFYILPSII, RSLKVPATV, EQFKKGVQI, LSVCLGSLI, DTYPSLETI, TQYNRYLAL, VMYASAVVL, SNYQHEETI, FELWAKRNI, VDIAANTVI, IAKKPTETI, CQYLNTLTL, RQWLPTGTL, LSLREVRTI, KVFTTVDNI, LDTYPSLETI, MQNCVLKLKV, CAMRPNFTI, VGFTLKNTV, MGHFAWWTAF, CALAPNMMV, VETKAIVSTI, RVFSAVGNI, FQSAVKRTI, THHWLLLTI, HAFLCLFLL, VAFNTLLFL, TQFNYYKKV, SQNAVASKI, ASLNGVTLI, FFSYFAVHFI, NAFLPFAMGI, TSMKYFVKI, LCQYLNTLTL, NSWLMWLII, LTNMFTPLI, QAISMWALI, YKQFDTYNLW, KSAFYILPSI, QAISMWALII, NSYFTEQPI, KQFDTYNLW, SNSWLMWLII, LAVPYNMRVI, INLVQMAPI, RAFGEYSHV, RAFGEYSHVV, ISAMVRMYI
	HLA-B*54	KPTVVVNAA, IPCTCGKQA, YGPFVDRQTA, IPTTCANDPV, NPYVCNAPG, VPVSIINNT, VKPTVVVNAA, MPTTIAKNT, LPINVIVFDG, CPRHVICTS, FYPKLQSSQA, CPNFVFPLN, LPFKLTCATT, CVPLNIIPLT, YPKLQSSQA, LPKGIMMNVA, LVPHVGEIPV, CPNFVFPLNS, VPNQPYPNA, MPSYCTGYRE, NLPFKLTCAT, FPNTYLEGS, QPIGALDISA, FTPFDVVRQC, VPLNIIPLT, GFPFNKWGKA, VPHVGEIPVA, LVPNQPYPNA, CPLIAAVIT, MGHFAWWTA, FFPDLNGDVV, FCAFAVDAA, SPYNSQNAVA, LPFFYYSDS, VPWDTIANYA, LMPILTLTRA, LPFFYYSDSP, SPLYAFASEA, LMPVCVETKA, FPDLNGDVVA, LPPKNSIDA, FPLNSIIKT, YPSARIVYTA, FFYVLGLAA, CPIFFITGNT, AMPNMLRIMA, FLPFAMGIIA, MPNMLRIMAS, FSSLPSYAA, FAMGIIAMSA, LTPVYSFLPG, SPFVMMSAP, LDAYNMMISA, MVRMYIFFAS, LPSYAAFATA
	HLA-C*01	RAGKASCTL, TAQNSVRVL, YITGGVVQL, IIFLEGETL, VADAVIKTL, KTLQPVSEL, VVNAANVYL, FGADPIHSL, CVEEVTTTL, TVASLINTL, SAPPAQYEL, ILKPANNSL,

		YSTAALGVL, SLPINVIVF, SASVYYSQL, VAKSHNIAL, LMDGSIIQF, MLNPNYEDL, LVQAGNVQL, LSAQTGIAV, SAQTGIAVL, FVKHKHAFL, WTLMNVLTL, IFFITGNTL, TTFTYASAL, ISMDNSPNL, STVFPPTSF, HAASGNLLL, AVTANVNAL, IADKYVRNL, YADVFHLYL, YIRKLHDEL, AMYTPHTVL, ISTSHKLVL, VMPLSAPTL, RITGLYPTL, VGMQKYSTL, ISMATNYDL, QLPAPRTLL, KTIGPDMFL, IVQMLSDTL, LSDRVVFVL, SLYVNKHAF, SAFVNLKQL, VSDIDYVPL, SVGPKQASL, QASLNGVTL, YGDFSHSQL, LFDMSKFPL, KAPKEIIFL, IANYAKPFL, HSLSHFVNL, FSTFEEAAL, YLKLRSDVL, CVPLNIIPL, IAATRGATV, NTFTRLQSL, TSNPTTFHL, IIQFPNTYL, HANEYRLYL, LVATAEAEL, YSDVENPHL, VTANVNALL, YIFWRNTNPI, AMPNMLRIM, AAYVDNSSL, IVDTVSALV, FLPGVYSVI, LTSHTVMPL, MFDAYVNTF, MSAPPAQYEL, AIASEFSSL
	HLA-C*03	HSSGVTREL, FCGPDGYPL, LKVGGSCVL, NLHPDSATL, YCNKTVGEL, YKKPASREL, IATYCTGSI, GSIPCSVCL, YANGGKGFC, GALDISASI, MAFPSGKVE, YKVYYGNAL, YGNALDQAI, FRYMNSQGL, NARDGCVPL, TALRANSAV, FKEGSSVEL, HKPPISFPL, YGIATVREV, EAVGTNLPL, FRNARNGVL, QNYGDSATL, NASSSEAFL, YCALAPNMM, VTFGDDTVI, KATYKPNTW, LSMQGAVDI, WSYSGQSTQL, TACTDDNAL, AANFCALIL, YVLMDGSII, MATNYDLSV, YFTEQPIDL, YVYIGDPAQL, FSHSQLGGL, ALYYPSARI, PAFDKSAFV, CSHAAVDAL, YAFASEAARV, YAADPAMHA, HVVAFNTLL, MAAYVDNSSL, FFLYENAFL
	HLA-C*07	ERSEKSYEL, SILSPLYAF, VRSIFSRTL, FEPSTQYEY, WKYPQVNGL, VRETMSYLF, QYELKHGTF, YKGPITDVF, FYKENSYTT, YFFTLLLQL, TRFFYVLGL, FYVLGLAAI, FFSYFAVHF, HFISNSWLM, FYYVWKSYV, YERHSLSHF, SGKPVPYCY, VYSFLPGVY, FYWFFSNYL, LRSDVLLPL, QYNRYLALY, YREAACCHL, IRKSNHNFL, VRIQPGQTF,

VRQCSGVTF, YFRLTLGVY, KYLYFIKGL,
FLKTNCCRF, FNKKDWYDF, YFKYWDQTY,
YHPNCVNCL, SYEDQDALF, LYYQNNVFM,
VYLPYPDPS, PYPDPSRIL, LYLQYIRKL,
YRGTTTYKL, YYPSARIVY, RLRAKHYVY,
YFNSVCRLM, KRVDWTIEY, EYRLYLDAY,
YYKKVDGVV, RFKESPFEL, GFFTYICGF,
YKLMGHFAW, GHFAWWTAF, WRNTNPIQL,
YKLNVGDYF, YYVWKSYVH, YYQNNVFMS,
LYYPSARIV, EYFNSVCRL, YHTTDPSFL,
NYYKKDNSY, FYAYLRKHF, DYDYYRYNL,
YRYNLPTMC

	HLA-C*08	FGDSVEEVL, FGDDTVIEV, FTTVDNINL, HTDLMAAYV, ISDEVARDL, YTDFATSAC, LNDFNLVAM, MSDVKCTSV, ANDPVGFTL, LSDDAVVCF, WTNAGDYIL, FSTGVNLVA, KVDGVDVEL, IATNGPLKV, YASAVVLLIL, ISDEFSSNV, MVSLLSVLL, KVDGVVQQL, VSDIDITFL, TSDLATNNL, YSDVENPHLM, AADPAMHAA, LGLAAIMQL, ISAGFSLWV
	HLA-C*12	YTRYVDNNF, YTVEEAKTV, YAKPFLNKV, FISAARQGF, FAMGIIAMS, YNMMISAGF, YSTAALGVLM
	HLA-C*14	YWVPRASAN, SFSASTSAF, VYEKLKPVL, KYCALAPNM, EFGATSAAL, DYIATNGPL, NFNQHEVLL, LYIDINGNL, TTEMLAKAL, YFYTSKTTV, SYSGQSTQL, KWADNNCYL, YYRARAGEA, TLYCIDGAL, SYTTTIKPV, KFADDLNQL, SFKKGAKLL, TIANYAKPF, SYIVDSVTV, VYYSQLMCQ, CFANKHADF, WFSQRGGSY, PYCYDTNVL, AMKYNYEPL, VYKVYYGNAL, NYSGVVTTV, EMLDNRATL, TTPGSGVPV, FYDFAVSKGF, RKHTTCCSL, SHFAIGLAL, QFKHLIPLM, VYNPFMIDV, EYPIIGDEL, KFTDGVCLF, RYPANSIVC, YYSDSPCES, YKQFDTYNL, FYPKLQSSQ, LYKMQRMLL, MYDPKTKNV, GFIQQKLAL, AFLIGCNYL, TLQAIASEF, FFKEGSSVEL, MFITREEAI, FDYVYNPFM, FYYSDSPCE, QWLPTGTLL, FWRNTNPIQL, FYFYTSKTT, RYVLMDGSI, TYLEGSVRV, LFLMSFTVL, SFLPGVYSV, SYREAACCH, TYHPNCVNC, TYKLNVGDY, FFYYSDSPC, IFWRNTNPI,

				HFYWFFSNYL, SYREAACCHL, RYFRLTLGVY, AYYNTTKGG, LYFIKGLNNL, YFIKGLNNL, TYHPNCVNCL, FYTSKTTVA, SFYYVWKSY, MYLKLRSDV, MYLKLRSDVL, FRYMNSQGLL, KFYGGWHNM, FYFYTSKTTV, TFDNLKTLL, VYYGNALDQ, AMHAASGNL, MHAASGNLL, VLYYQNNVFM, LYYPSARIVY, MYMGTLSYE, HFYWFFSNY, DYYRYNLPTM, YVYIGDPAQ, FYVLGLAAIM, YFVLTSHTV, SYFTEQPIDL, KYTMADLVY, DYYRYNLPT, YYRYNLPTMC, LYYDSMSYE, WFLNRFTTTL, EYYHTTDPS, MYIFFASFY, FYLITPVHVM, FYLTNDVSFL, QYVFCTVNAL, RLYLDAYNM, IYSTAALGV, FYLITPVHV, VYYTSNPTT, ALYNKYKYF, YFVLTSHTVM, AYVNTFSST
Spike	3822	9-10	HLA-A*02	FVFLVLLPL, FQFCNDPFL, AVDCALDPL, KLNDLCFTNV, KIADYNYKL, KLPDDFTGCV, NQVAVLYQDV, YQDVNCTEV, MQMAYRFNGI, RLQSLQTYV, YHLMSFPQSA, FVSNGTHWFV, YIWLGFIAGL, GYLQPRTFLL, FQTRAGCLI, FTISVTTEI, TQLNRALTGI, VLNDILSRL, HLMSFPQSA, KQIYKTPPI, KQLSSNFGA, YLQPRTFLL, FELLHAPATV, FIEDLLFNKV, FIAGLIAIV, SIIAYTMSL, YIKWPWYIWL, LQSYGFQPT, LLFNKVTLA, FVFLVLLPLV, VVFLHVTYVb, SVTTEILPV
			HLA-A*11	GVYFASTEK, GVYYHKNNK, CTLKSFTVEK, GVLTESNKK, TEILPVSMTK, GSFCTQLNR, VTLADAGFIK, SVLNDILSR, RASANLAATK, SLIDLQELGK, CMTSCCSCLK, TLKSFTVEK, EILPVSMTK, SFIEDLLFNK, TLADAGFIK, ASANLAATK, MTSCCSCLK, FIEDLLFNK, SSTASALGK, YNSASFSTFK, NSASFSTFK, YLQPRTFLLK
			HLA-A*24	YYHKNNKSW, VYAWNRKRI, LYNSASFSTF, GNYNYLYRLF, CYFPLQSYGF, RVYSTGSNVF, KYEQYIKWPW, EQYIKWPWYI, KWPWYIWLGF, NYNYLYRLF, YFPLQSYGF, KWPWYIWLG, IWLGFIAGLI, YNSASFSTF, QYIKWPWYI, IYQTSNFRV, NYNYLYRLFR, IYKTPPIKDF, QYIKWPWYIW, VYSTGSNVF, VYSTGSNVFQ, PYRVVVLSF

	HLA-A*26	GWTAGAAAYY, WTAGAAAYYV, NTSNQVAVLY, SVASQSIIAY, EVFAQVKQIY, FVSNGTHWF, FIAGLIAIVMb, STQDLFLPF, EFVFKNIDGY, WTAGAAAYY, ESNKKFLPF, EILDITPCSF, EMIAQYTSAL, MIAQYTSAL, YTNSFTRGVY
	HLA-A*31	GVYYPDKVFR, KSWMESEFR, KQGNFKNLR, RFQTLLALHR, AYYVGYLQPR, KGIYQTSNFR, QTNSPRRAR, GIYQTSNFR, GTHWFVTQR, VYYPDKVFR, KFLPFQQFGR, VYADSFVIR, RFASVYAWNR
	HLA-A*33	FTRGVYYPDK, NGVGYQPYR, STGSNVFQTR, NGTHWFVTQR, YYVGYLQPR, NVYADSFVIR, YNYLYRLFR, NYLYRLFRK
	HLA-B*07	NSPRRARSVA, SPRRARSVAS, SPRRARSVA, FPQSAPHGVV, LPVSMTKTSV, YPDKVFRSSV, IPTNFTISV
	HLA-B*15	HSTQDLFLPF, AQKFNGLTVL, TLVKQLSSNF, PQSAPHGVVF, AICHDGKAHF, SWMESEFRVY, SLGAENSVAY, LVKQLSSNF, QSAPHGVVF, LMSFPQSAPH, TNLCPFGEVF, STQDLFLPFF, ASFSTFKCY, LQPRTFLLKY
	HLA-B*35	LPPAYTNSF, FPNITNLCPF, HADQLTPTW, IAIVMVTIM, LPFFSNVTWF, FNATRFASVY, VASQSIIAY, LGAENSVAY, LPVSMTKTS, WPWYIWLGF, LPFFSNVTW, MSFPQSAPH, NATRFASVY
	HLA-B*40	CEFQFCNDPF, TFEYVSQPFL, FERDISTEI, VEGFNCYFPL, LEILDITPC, TEVPVAIHA, YECDIPIGA, FEYVSQPFLM, GEVFNATRFA, FELLHAPAT, AEIRASANL, MESEFRVYS, ESEFRVYSSA, SEFRVYSSA, FEYVSQPFL, AEIRASANLA, IEDLLFNKV
	HLA-B*44	GEVFNATRF, AENSVAYSN, QEVFAQVKQI, ADAGFIKQY, AAEIRASANL, QELGKYEQY, YEQYIKWPWY, TEKSNIIRGW, AENSVAYSNN, YEQYIKWPW
	HLA-B*46	FTNVYADSF, NFTISVTTEI, IMLCCMTSC, FTISVTTEIL

			HLA-B*51	LLPLVSSQCV, LPPLLTDEMI, FPQSAPHGV, LPLVSSQCV, LPDDFTGCVI, IAIPTNFTI, VAYSNNSIAI, LPLVSSQCVN, WPWYIWLGFI
			HLA-B*52	VTWFHAIHV, RGWIFGTTL, SIAIPTNFTI, RSFIEDLLF, KNFTTAPAI, RNFYEPQII, SNVTWFHAI, VGYQPYRVV, CDIPIGAGI, IANQFNSAI, LQTYVTQQLI, RVYSTGSNV, QTYVTQQLI, LGFIAGLIAI, MAYRFNGIGV, KQLSSNFGAI, VGYLQPRTF, SNFGAISSV
			HLA-B*54	FLPFFSNVTW, FSNVTWFHA, LCPFGEVFNA, LSFELLHAPA, IPIGAGICA, LIANQFNSA, CPFGEVFNA, CPFGEVFNAT, FPLQSYGFQP, FLHVTYVPA
			HLA-C*01	SALEPLVDL, LLALHRSYL, ITDAVDCAL, VIAWNSNNL, WTFGAGAAL, SLSSTASAL, VVNQNAQAL, VYDPLQPEL, TLDSKTQSL, AAAYYVGYL, YQPYRVVVL, SAPHGVVFL, VSQPFLMDL, IAQYTSALL
			HLA-C*03	FASTEKSNI, IVNNATNVV, YGFQPTNGV, MSLGAENSV, FCTQLNRAL, FIKQYGDCL, FCGKGYHLM, SANLAATKM, YKTPPIKDF, FGAGAALQI
			HLA-C*07	TRTQLPPAY, FKNLREFVF, TRFQTLLAL, VRFPNITNL, FYEPQIITT, YHKNNKSWM, GYQPYRVVV, HWFVTQRNF, YYPDKVFRS, YRFNGIGVT, PFFSNVTWF, TRFASVYAW, IKWPWYIWL, EYVSQPFLM
			HLA-C*08	NSYECDIPI, TSVDCTMYI
			HLA-C*12	LVRDLPQGF, YTNSFTRGV
			HLA-C*14	SVLHSTQDL, YYHKNNKSWM, GYLQPRTFL, CYGVSPTKL, IYQAGSTPC, VFQTRAGCL, VFAQVKQIY, AYRFNGIGV, AYSNNSIAI, NFGAISSVL
E	228	9-10	HLA-A*02	FLAFVVFLL, SVLLFLAFV, LFLAFVVFLL, VLLFLAFVV, FLAFVVFLLV, LLFLAFVVFL, SLVKPSFYV

			HLA-A*11	NIVNVSLVK
			HLA-A*31	RVKNLNSSR, SRVKNLNSSR
			HLA-B*15	LIVNSVLLF, LLFLAFVVF, VLLFLAFVVF, LVKPSFYVY, SLVKPSFYVY
			HLA-B*51	LAFVVFLLV, LAFVVFLLVT
			HLA-B*54	FVVFLLVTLA
			HLA-C*01	YVYSRVKNL
			HLA-C*07	FYVYSRVKNL
			HLA-C*08	IVNSVLLFL
M	668	9-10	HLA-A*02	KLLEQWNLV, FLFLTWICL, FVLAAVYRI, IAMACLVGL, FLFLTWICLL, KLLEQWNLVI, FLWLLWPVTL, TLACFVLAA, LVIGFLFLT, FLYIIKLIFL, SMWSFNPET, FLWLLWPVT, IFLWLLWPV, VTLACFVLA, GLMWLSYFI, LIFLWLLWPV, TLACFVLAAV, VGLMWLSYFI, GLMWLSYFIA
			HLA-A*11	GTITVEELKK, YSRYRIGNYK, ATSRTLSYY, LSYFIASFR, TSRTLSYYK, ATSRTLSYYK
			HLA-A*24	QWNLVIGFLF, LWLLWPVTL, SYFIASFRL, YYKLGASQRV, MWLSYFIASF, RFLYIIKLIF, LSYFIASFRL, LLWPVTLACF, YFIASFRLF, LYIIKLIFLW, SYFIASFRLF
			HLA-A*26	YSRYRIGNY, TVATSRTLSY, CLVGLMWLSY, DSGFAAYSRY
			HLA-A*31	RIAGHHLGR, AVILRGHLR, WLSYFIASFR, GFAAYSRYR, SFRLFARTR, SGFAAYSRYR, ASFRLFARTR, IASFRLFAR, FIASFRLFAR
			HLA-A*33	YYKLGASQR, CFVLAAVYR, SYYKLGASQR, LVIGAVILR, QFAYANRNR, LLQFAYANR

			HLA-B*15	LEQWNLVIGF, WLSYFIASF, SQRVAGDSGF, RLFARTRSM, FRLFARTRSM
			HLA-B*35	FAYANRNRF, YANRNRFLY, LPKEITVAT, VATSRTLSY, WICLLQFAY
			HLA-B*40	LESELVIGA, SELVIGAVI, ESELVIGAVI, LESELVIGAV, SELVIGAVIL
			HLA-B*44	EELKKLLEQW
			HLA-B*46	FLYIIKLIF, FARTRSMWSF, FLTWICLLQF, LACFVLAAVY
			HLA-B*51	WPVTLACFVL, LWPVTLACFV, IAIAMACLV, WPVTLACFV, GIAIAMACLV, IAIAMACLVG
			HLA-B*52	INWITGGIAI, LNVPLHGTI, IGFLFLTWI, WSFNPETNI
			HLA-B*54	LMWLSYFIA
			HLA-C*01	NVPLHGTIL, ITVATSRTL, FAAYSRYRI, FAYANRNRFL
			HLA-C*07	ARTRSMWSF, SRTLSYYKL, RYRIGNYKL, NRNRFLYII
			HLA-C*08	MADSNGTITV
			HLA-C*14	SFNPETNIL, SYYKLGASQ, AYANRNRFL
N	1260	9-10	HLA-A*02	NTASWFTAL, LLLDRLNQLb, QQTVTLLPA, FGMSRIGMEVb
			HLA-A*11	ATEGALNTPK, KTFPPTEPK, KTFPPTEPKK, YKTFPPTEPK, ASAFFGMSR, SASAFFGMSR
			HLA-A*24	YYRRATRRI, QFAPSASAFF
			HLA-A*26	SSPDDQIGYY, DLSPRWYFY, ELIRQGTDY, FAPSASAFF, DLSPRWYFYY

			HLA-A*31	RSGARSKQR, SSRSRNSSR, SSRGTSPAR, ASKKPRQKR, AYNVTQAFGR, SSRSSSRSR, GYYRRATRR, IGYYRRATR
			HLA-A*33	NVTQAFGRR, QIGYYRRATR
			HLA-B*07	APRITFGGPS, RPQGLPNNTA, FPRGQGVPI, RNPANNAAIV, KKPRQKRTAT, KPRQKRTAT, KPRQKRTATK, SPRWYFYYL, KFPRGQGVPI, LSPRWYFYYL, FPRGQGVPIN, SPRWYFYYLG, APSASAFFGM
			HLA-B*15	GTGPEAGLPY, RQKRTATKAY, KAYNVTQAF, LLNKHIDAY, AQFAPSASAF
			HLA-B*35	MAGNGGDAAL, LPAADLDDF, TPSGTWLTY, VTPSGTWLTY, LPNNTASWF
			HLA-B*44	QELIRQGTDY, MEVTPSGTW, MEVTPSGTWL, GMEVTPSGTW
			HLA-B*46	KAYNVTQAFG, TKAYNVTQAF
			HLA-B*51	LPYGANKDGI
			HLA-B*52	LQLPQGTTL, TDYKHWPQI, SAFFGMSRI
			HLA-C*01	LTYTGAIKL
			HLA-C*03	PANNAAIVL, AGNGGDAAL, EVTPSGTWL
			HLA-C*07	QRNAPRITF, FYYLGTGPE, KHWPQIAQF, QFAPSASAF
			HLA-C*14	YYLGTGPEA, IWVATEGAL, FFGMSRIGM, TWLTYTGAI, NFKDQVILL, KKADETQAL
ORF6	186	9-10	HLA-A*02	HLVDFQVTI, LIIMRTFKV, FHLVDFQVTI
			HLA-A*11	LLIIMRTFK

			HLA-B*52	LDYIINLII
			HLA-C*08	VSIWNLDYI
ORF8	366	9-10	HLA-A*02	YVVDDPCPI, YIDIGNYTV, YTVSCLPFTI, YTVSCLPFT
			HLA-A*11	FTINCQEPK
			HLA-A*24	FYSKWYIRV, NYTVSCLPF
			HLA-A*26	GIITTVAAF
			HLA-A*31	KWYIRVGAR, HFYSKWYIR, HFYSKWYIRV, IHFYSKWYIR
			HLA-B*52	IHFYSKWYI
			HLA-B*54	FLGIITTVAA, LPFTINCQE, LGIITTVAA
			HLA-C*01	AAFHQECSL, VGARKSAPL
			HLA-C*07	FYEDFLEYH, EYHDVRVVL, VRCSFYEDF
			HLA-C*14	SFYEDFLEY
ORF10	116	9-10	HLA-A*02	AQVDVVNFNL, FAFPFTIYSL
			HLA-A*11	TIYSLLLCR
			HLA-A*24	GYINVFAFPF
			HLA-A*33	LLLCRMNSR, FTIYSLLLCR
			HLA-B*15	YIAQVDVVNF

	HLA-B*35	YINVFAFPF, MGYINVFAF, FAFPFTIYS, FPFTIYSLL
	HLA-B*51	FPFTIYSLLL, AFPFTIYSLL
	HLA-B*52	NVFAFPFTI, INVFAFPFTI
	HLA-C*01	AFPFTIYSL
	HLA-C*14	VFAFPFTIY, IYSLLLCRM

Supplementary Material III

Distribution of the Bahia sequences (n=743) in the Global Initiative on Sharing All Influenza Data (GISAID) and Phylogenetic Assignment of Named Global Outbreak LINeages clades (PANGOLIN).

GISAID clade#	Count of sequences	Pangolin
S	1	**A.1 = 1**
GRY	44	**B.1.1.7 = 44**
V	2	**C.14 = 2**
G	2	**AY.99.2 = 1**
		B.1.525 = 1
L	1	B.3 = 1
GH	88	**B.1 = 13**
		B.1.1.28 = 75
GR	605	**B.1.1 = 14**
		B.1.1.33 = 79
		B.1.1.378 = 3
		N.1 = 1
		N.9 = 12
		P.1 = 361
		P.1.14 = 10
		P.1.2 = 2
		P.1.7 = 4
		P.2 = 118
		P.7 = 1
Total	743	743

Bold fonts indicate the major distribution. #Clade information not available as on September 1, 2021, for the number of strains depicted in the bracket. GISAID: Global Initiative on Sharing All Influenza Data; PangoLIN: Phylogenetic Assignment of Named Global Outbreak LINeages.