

Supplementary Table 1: Predicted SARS-CoV-2-derived HLA class I-binding peptides selected for immunogenicity screening

| Peptide ID | Sequence | Protein | HLA restriction | Start position | Stop position | SYFPEITHI score [%] | NetMHC rank | SARS-CoV-1 [%] |
|------------|--------------|----------|-----------------|----------------|---------------|---------------------|-------------|----------------|
| A01_P01 | TTDPSFLGRY | ORF1 | A*01 | 1,637 | 1,646 | 89.7 | 0.00 | 80 |
| A01_P02 | LTDEMIAQY | ORF2 spi | A*01 | 865 | 873 | 80.0 | 0.00 | 78 |
| A01_P03 | ISEHDYQIGGY | ORF3 | A*01 | 179 | 189 | 69.2 | 0.13 | 64 |
| A01_P04 | AGDSGFAAY | ORF5 mem | A*01 | 188 | 196 | 72.5 | 0.16 | 78 |
| A01_P05 | RTFKVSIWNLDY | ORF6 | A*01 | 20 | 31 | 65.9 | 1.57 | 67 |
| A01_P06 | RQEEVQELY | ORF7 | A*01 | 89 | 97 | 60.0 | 0.33 | 67 |
| A01_P07 | VDEAGSKSPIQY | ORF8 | A*01 | 62 | 73 | 73.2 | 1.23 | 0 |
| A01_P08 | SPDDQIGYY | ORF9 nuc | A*01 | 79 | 87 | 67.5 | 0.23 | 89 |
| A01_P09 | GTGPEAGLPY | ORF9 nuc | A*01 | 114 | 123 | 64.1 | 0.27 | 90 |
| A01_P10 | LIDLQELGKY | ORF2 spi | A*01 | 1,197 | 1,206 | 74.4 | 0.09 | 100 |
| A02_P01 | FLLPLSATV | ORF1 | A*02 | 3,639 | 3,647 | 91.7 | 0.01 | 100 |
| A02_P02 | FIAGLIAIV | ORF2 spi | A*02 | 1,220 | 1,228 | 83.3 | 0.13 | 100 |
| A02_P03 | ALSKGVHfV | ORF3 | A*02 | 72 | 80 | 80.6 | 0.04 | 56 |
| A02_P04 | FLAFVVFLL | ORF4 env | A*02 | 20 | 28 | 72.2 | 0.30 | 100 |
| A02_P05 | KLLEQWNLV | ORF5 mem | A*02 | 15 | 23 | 72.2 | 0.06 | 89 |
| A02_P06 | SIWNLDYIINL | ORF6 | A*02 | 25 | 35 | 73.5 | 1.10 | 64 |
| A02_P07 | ILFLALITL | ORF7 | A*02 | 4 | 12 | 80.6 | 0.36 | 67 |
| A02_P08 | FLVFLGIITTV | ORF8 | A*02 | 3 | 13 | 76.5 | 0.75 | 0 |
| A02_P09 | LLLLDRLNQL | ORF9 nuc | A*02 | 221 | 230 | 85.3 | 0.93 | 100 |
| A02_P10 | VLQLPQGTTL | ORF9 nuc | A*02 | 158 | 167 | 67.7 | 1.07 | 100 |
| A03_P01 | KLFAAETLK | ORF1 | A*03 | 5,455 | 5,463 | 83.9 | 0.01 | 100 |
| A03_P02 | RLFRKSNLK | ORF2 spi | A*03 | 454 | 462 | 87.1 | 0.01 | 33 |
| A03_P03 | RIFTIGTVTLK | ORF3 | A*03 | 6 | 16 | 81.3 | 0.14 | 46 |
| A03_P04 | NIVNVSLVK | ORF4 env | A*03 | 45 | 53 | 71.0 | 0.44 | 100 |
| A03_P05 | RIAGHHLGR | ORF5 mem | A*03 | 150 | 158 | 74.2 | 0.08 | 78 |
| A03_P06 | NLIKNLSK | ORF6 | A*03 | 34 | 42 | 77.4 | 0.28 | 33 |
| A03_P07 | QLRARSVSPK | ORF7 | A*03 | 76 | 85 | 67.7 | 0.78 | 100 |
| A03_P08 | KTFPPTEPKK | ORF9 nuc | A*03 | 361 | 370 | 90.3 | 0.01 | 100 |
| A03_P09 | KLDDKDPNFK | ORF9 nuc | A*03 | 338 | 347 | 80.7 | 0.32 | 90 |
| A03_P10 | VTYVPAQEK | ORF2 spi | A*03 | 1,065 | 1,073 | 71.0 | 0.02 | 78 |
| A11_P01 | ASMPPTIAK | ORF1 | A*11 | 2,192 | 2,200 | 82.4 | 0.00 | 89 |
| A11_P02 | SVLNDILSR | ORF2 spi | A*11 | 975 | 983 | 79.4 | 0.06 | 100 |
| A11_P03 | ASKIITLKK | ORF3 | A*11 | 59 | 67 | 79.4 | 0.11 | 67 |
| A11_P04 | VTLAILTALR | ORF4 env | A*11 | 29 | 38 | 66.7 | 1.12 | 100 |
| A11_P05 | GTITVEELKK | ORF5 mem | A*11 | 6 | 15 | 87.9 | 0.18 | 90 |
| A11_P06 | NLIKNLSK | ORF6 | A*11 | 34 | 42 | 61.8 | 0.65 | 33 |
| A11_P07 | GVKHVYQLR | ORF7 | A*11 | 70 | 78 | 67.7 | 1.80 | 67 |
| A11_P08 | ATEGALNTPK | ORF9 nuc | A*11 | 134 | 143 | 72.7 | 0.23 | 100 |
| A11_P09 | ASAFFGMSR | ORF9 nuc | A*11 | 311 | 321 | 67.7 | 0.06 | 100 |
| A11_P10 | SSTASALGK | ORF2 spi | A*11 | 939 | 947 | 85.3 | 0.10 | 44 |
| A24_P01 | VYIGDPAQL | ORF1 | A*24 | 5,721 | 5,729 | 80.7 | 0.03 | 100 |
| A24_P02 | QYIKWPWYI | ORF2 spi | A*24 | 1,208 | 1,216 | 77.4 | 0.03 | 89 |

| Peptide ID | Sequence | Protein | HLA restriction | Start position | Stop position | SYFPEITHI score [%] | NetMHC rank | SARS-CoV-1 [%] |
|------------|-------------|----------|-----------------|----------------|---------------|---------------------|-------------|----------------|
| A24_P03 | VYFLQSFNF | ORF3 | A*24 | 112 | 120 | 71.0 | 0.01 | 67 |
| A24_P04 | FYVYSRVKNL | ORF4 env | A*24 | 56 | 65 | 70.0 | 1.56 | 90 |
| A24_P05 | SYFIASFRLF | ORF5 mem | A*24 | 94 | 103 | 76.7 | 0.07 | 90 |
| A24_P06 | PFHPLADNKF | ORF7 | A*24 | 45 | 54 | 60.0 | 0.44 | 100 |
| A24_P07 | EYHDVRVVLDL | ORF8 | A*24 | 110 | 120 | 70.0 | 0.63 | 0 |
| A24_P08 | DYKHWPQIAQF | ORF9 nuc | A*24 | 297 | 307 | 66.7 | 0.32 | 100 |
| A24_P09 | GYINVFAFPF | ORF10 | A*24 | 2 | 11 | 76.7 | 0.24 | 0 |
| A24_P10 | YYLGTGPEAGL | ORF9 nuc | A*24 | 111 | 121 | 73.3 | 0.63 | 91 |
| B07_P01 | APHGHVMVEL | ORF1 | B*07 | 79 | 88 | 86.7 | 0.04 | 60 |
| B07_P02 | TPINLVRDL | ORF2 spi | B*07 | 208 | 216 | 63.6 | 0.15 | 67 |
| B07_P03 | APFLYLYAL | ORF3 | B*07 | 103 | 111 | 69.7 | 0.09 | 89 |
| B07_P04 | KPSFYVYSRV | ORF4 env | B*07 | 53 | 62 | 63.3 | 1.87 | 80 |
| B07_P05 | RPLLESELVI | ORF5 mem | B*07 | 131 | 140 | 66.7 | 0.86 | 90 |
| B07_P06 | HPLADNKFAL | ORF7 | B*07 | 47 | 56 | 73.3 | 0.11 | 100 |
| B07_P07 | EPKLGSLVV | ORF8 | B*07 | 92 | 100 | 60.6 | 0.37 | 0 |
| B07_P08 | FPRGQGVPI | ORF9 nuc | B*07 | 66 | 74 | 72.7 | 0.02 | 100 |
| B07_P09 | FPFTIYSLLL | ORF10 | B*07 | 9 | 18 | 73.3 | 1.63 | 0 |
| B07_P10 | NPANNAIVL | ORF9 nuc | B*07 | 150 | 159 | 73.3 | 0.32 | 80 |
| B08_P01 | YLKLRSDVL | ORF1 | B*08 | 3,190 | 3,198 | 81.4 | 0.01 | 78 |
| B08_P02 | EPVLKGVKL | ORF2 spi | B*08 | 1,262 | 1,270 | 69.8 | 0.17 | 100 |
| B08_P03 | IINKLSKSL | ORF6 | B*08 | 36 | 44 | 60.5 | 0.17 | 44 |
| B08_P04 | TLDSKTQSL | ORF2 spi | B*08 | 109 | 117 | 60.5 | 0.19 | 33 |
| B08_P05 | TPKYKFVRI | ORF1 | B*08 | 3,361 | 3,369 | 79.1 | 0.02 | 100 |
| B08_P06 | VPMEKLT | ORF1 | B*08 | 2,604 | 2,612 | 69.8 | 0.01 | 89 |
| B08_P07 | FVKHKHAF | ORF1 | B*08 | 3,628 | 3,636 | 72.1 | 0.02 | 89 |
| B08_P08 | DLKGYVQI | ORF1 | B*08 | 4,344 | 4,352 | 76.7 | 0.04 | 100 |
| B08_P09 | GAKLKALNL | ORF1 | B*08 | 697 | 705 | 83.7 | 0.07 | 78 |
| B08_P10 | EAFEKMVSL | ORF1 | B*08 | 3,906 | 3,914 | 67.4 | 0.03 | 100 |
| B15_P01 | YQKVGMMQKY | ORF1 | B*15 | 5,593 | 5,601 | 85.2 | 0.01 | 100 |
| B15_P02 | VLKGVKLHY | ORF2 spi | B*15 | 1,264 | 1,272 | 88.9 | 0.04 | 100 |
| B15_P03 | FLYLYALVY | ORF3 | B*15 | 105 | 113 | 81.5 | 1.14 | 89 |
| B15_P04 | LVKPSFYVY | ORF4 env | B*15 | 51 | 59 | 77.8 | 0.09 | 78 |
| B15_P05 | WLSYFIASF | ORF5 mem | B*15 | 92 | 100 | 74.1 | 1.41 | 89 |
| B15_P06 | KVSIWNLDY | ORF6 | B*15 | 23 | 31 | 74.1 | 1.19 | 56 |
| B15_P07 | RQEEVQELY | ORF7 | B*15 | 89 | 97 | 85.2 | 0.11 | 67 |
| B15_P08 | IQYIDIGNY | ORF8 | B*15 | 71 | 79 | 77.8 | 0.02 | 0 |
| B15_P09 | LLNKHIDAY | ORF9 nuc | B*15 | 352 | 360 | 81.5 | 0.06 | 100 |
| B15_P10 | NVFAFPFTIY | ORF10 | B*15 | 5 | 14 | 60.6 | 1.37 | 0 |
| B40_P01 | AEIVDTVSAL | ORF1 | B*40 | 5,770 | 5,779 | 71.9 | 0.02 | 100 |
| B40_P02 | SEPVKGVKL | ORF2 spi | B*40 | 1,261 | 1,270 | 90.6 | 0.29 | 100 |
| B40_P03 | SELVIGAVIL | ORF5 mem | B*40 | 136 | 145 | 87.5 | 0.12 | 90 |
| B40_P04 | YEGNSPFHPL | ORF7 | B*40 | 40 | 49 | 62.5 | 0.27 | 100 |

| Peptide ID | Sequence | Protein | HLA restriction | Start position | Stop position | SYFPEITHI score [%] | NetMHC rank | SARS-CoV-1 [%] |
|------------|------------|----------|-----------------|----------------|---------------|---------------------|-------------|----------------|
| B40_P05 | LEYHDVRVVL | ORF8 | B*40 | 109 | 118 | 90.6 | 0.11 | 0 |
| B40_P06 | MEVTPSGTWL | ORF9 nuc | B*40 | 322 | 331 | 68.8 | 0.21 | 100 |
| B40_P07 | NESLIDLQEL | ORF2 spi | B*40 | 1,194 | 1,203 | 71.9 | 0.50 | 100 |
| B40_P08 | TEAFEKMVSL | ORF1 | B*40 | 3,905 | 3,914 | 84.4 | 0.15 | 100 |
| B40_P09 | IEYPIIGDEL | ORF1 | B*40 | 6,219 | 6,228 | 71.9 | 0.06 | 90 |
| B40_P10 | TEVPANSTVL | ORF1 | B*40 | 4,258 | 4,267 | 75.0 | 0.10 | 100 |
| C07_P01 | NYMPYFFTL | ORF1 | C*07 | 2,167 | 2,175 | 86.7 | 0.01 | 89 |
| C07_P02 | VRFPNITNL | ORF2 spi | C*07 | 327 | 335 | 76.7 | 0.00 | 100 |
| C07_P03 | YYQLYSTQL | ORF3 | C*07 | 211 | 219 | 73.3 | 0.05 | 78 |
| C07_P04 | NRFLYIIKL | ORF5 mem | C*07 | 43 | 51 | 80.0 | 0.07 | 100 |
| C07_P05 | IRQEEVQEL | ORF7 | C*07 | 88 | 96 | 80.0 | 0.10 | 78 |
| C07_P06 | EYHDVRVVL | ORF8 | C*07 | 110 | 118 | 80.0 | 0.10 | 0 |
| C07_P07 | QRNAPRITF | ORF9 nuc | C*07 | 9 | 17 | 76.7 | 0.04 | 89 |
| C07_P08 | KKADETQAL | ORF9 nuc | C*07 | 374 | 382 | 60.0 | 1.62 | 67 |
| C07_P09 | VYDPLQPEL | ORF2 spi | C*07 | 1,137 | 1,145 | 76.7 | 0.08 | 100 |
| C07_P10 | IYNDKVAGF | ORF1 | C*07 | 4,429 | 4,437 | 80.0 | 0.02 | 89 |

Selection of 100 SARS-CoV-2-derived HLA class I-binding peptides predicted with SYFPEITHI 1.0 and NetMHCpan 4.0 for immunogenicity screening. SYFPEITHI scores are depicted as percentage of the maximal allotype-specific score. Percentage of SARS-CoV-1 indicates the similarity of the amino acid sequence of the SARS-CoV-2-derived peptide to the respective peptide sequence of SARS-CoV-1. ID, identification number; spi, spike protein; env, envelope protein; mem, membrane protein; nuc, nucleocapsid protein.

Supplementary Table 2: Selection of SARS-CoV-2-derived HLA-DR-binding peptide clusters

| Protein | Cluster ID | Shared core sequence | HLA restrictions covered within cluster | Sequence | HLA restriction | Start position | End position | Peptide ID |
|-------------|------------|----------------------|--|------------------------|-----------------|----------------|--------------|---------------|
| ORF1 | DR_ORF1 | DDFVEIIKS | DRB1*01, DRB1*03, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | VIDLLDDDFVEIIKS | DRB1*03 | 6,746 | 6,760 | |
| | | | | DLLDDDFVEIIKSQD | DRB1*15 | 6,748 | 6,762 | |
| | | | | LDDFVEIIKSQDLSV | DRB1*11 | 6,751 | 6,765 | DR_P11 |
| | | | | DDFVEIIKSQDLSVV | DRB1*01 | 6,752 | 6,766 | |
| | | | | DDFVEIIKSQDLSVV | DRB1*04 | 6,752 | 6,766 | |
| ORF2 spi | DR_ORF2_A | FQTLALHR | DRB1*01, DRB1*03, DRB1*04, DRB1*11, DRB1*15 | GINITRFQTLALHR | DRB1*15 | 232 | 246 | |
| | | | | ITRFQTLALHRSYL | DRB1*01 | 235 | 249 | DR_P12 |
| | | | | FQTLALHRSYLTPG | DRB1*03 | 238 | 252 | |
| | | | | FQTLALHRSYLTPG | DRB1*04 | 238 | 252 | |
| | | | | FQTLALHRSYLTPG | DRB1*11 | 238 | 252 | |
| ORF2 spi | DR_ORF2_B | LTVLPPLLT | DRB1*01, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | AQKFNGTLVLPPLLT | DRB1*11 | 852 | 866 | |
| | | | | FNGTLVLPPLTDEM | DRB1*15 | 855 | 869 | DR_P13 |
| | | | | LTVLPPLTDEMIAQ | DRB1*01 | 858 | 872 | |
| | | | | LTVLPPLTDEMIAQ | DRB1*04 | 858 | 872 | |
| | | | | LTVLPPLTDEMIAQ | DRB1*07 | 858 | 872 | |
| ORF3 | DR_ORF3 | IFTIGTVTL | DRB1*01, DRB1*03, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | MDLFMRIFTIGTVTL | DRB1*04 | 1 | 15 | |
| | | | | DLFMRIFTIGTVTLK | DRB1*15 | 2 | 16 | |
| | | | | FMRIFTIGTVTLKQG | DRB1*01 | 4 | 18 | DR_P14 |
| | | | | FMRIFTIGTVTLKQG | DRB1*03 | 4 | 18 | DR_P14 |
| | | | | FMRIFTIGTVTLKQG | DRB1*07 | 4 | 18 | DR_P14 |
| ORF4 env | DR_ORF4 | YSRVKLNLS | DRB1*01, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | KPSFYVYSRVKLNLS | DRB1*15 | 53 | 67 | |
| | | | | PSFYVYSRVKLNLS | DRB1*07 | 54 | 68 | |
| | | | | FVYYSRVKLNLS | DRB1*04 | 56 | 70 | DR_P15 |
| | | | | FVYYSRVKLNLS | DRB1*11 | 56 | 70 | DR_P15 |
| | | | | YSRVKLNLS | DRB1*01 | 59 | 73 | |
| ORF5 mem | DR_ORF5 | YKLGASQRV | DRB1*01, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | SRTLSEYKLGASQRV | DRB1*15 | 173 | 187 | |
| | | | | TLSYKLGASQRVAG | DRB1*01 | 175 | 189 | |
| | | | | LSYKLGASQRVAGD | DRB1*04 | 176 | 190 | DR_P16 |
| | | | | LSYKLGASQRVAGD | DRB1*07 | 176 | 190 | DR_P16 |
| | | | | YKLGASQRVAGDSG | DRB1*11 | 178 | 192 | |
| ORF6 | DR_ORF6 | YIINLIKN | DRB1*04, DRB1*07, DRB1*11, DRB1*15 | IWNLDYIINLIKNL | DRB1*04 | 26 | 40 | DR_P17 |
| | | | | IWNLDYIINLIKNL | DRB1*07 | 26 | 40 | DR_P17 |
| | | | | IWNLDYIINLIKNL | DRB1*15 | 26 | 40 | DR_P17 |
| | | | | DYIINLIKNLSKSL | DRB1*11 | 30 | 44 | |
| ORF7 | DR_ORF7 | EEVQELYSP | DRB1*01, DRB1*03, DRB1*07, DRB1*15 | KLFIRQEEVQELYSP | DRB1*03 | 85 | 99 | |
| | | | | QEEVQELYSPIFLIV | DRB1*01 | 90 | 104 | DR_P18 |
| | | | | QEEVQELYSPIFLIV | DRB1*07 | 90 | 104 | DR_P18 |
| | | | | EEVQELYSPIFLIVA | DRB1*15 | 91 | 105 | |
| ORF8 | DR_ORF8 | IRVGARKSA | DRB1*01, DRB1*03, DRB1*07, DRB1*11 | SKWYIRVGARKSAPL | DRB1*01 | 43 | 57 | DR_P19 |
| | | | | SKWYIRVGARKSAPL | DRB1*11 | 43 | 57 | DR_P19 |
| | | | | YIRVGARKSAPLIEL | DRB1*03 | 46 | 60 | |
| | | | | YIRVGARKSAPLIEL | DRB1*07 | 46 | 60 | |

| Protein | Cluster ID | Shared core sequence | HLA restrictions covered within cluster | Sequence | HLA restriction | Start position | End position | Peptide ID |
|----------|------------|----------------------|--|-------------------------|-----------------|----------------|--------------|---------------|
| ORF9 nuc | DR_ORF9_D | FTALTQH GK | DRB1*03, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | NNTASWFTALTQH GK | DRB1*15 | 47 | 61 | |
| | | | | TASWFTALTQH GKED | DRB1*07 | 49 | 63 | |
| | | | | ASWFTALTQH GKEDL | DRB1*04 | 50 | 64 | DR_P04 |
| | | | | ASWFTALTQH GKEDL | DRB1*11 | 50 | 64 | DR_P04 |
| | | | | FTALTQH GKEDLKFP | DRB1*03 | 53 | 67 | |
| ORF9 nuc | DR_ORF9_F | YYRRATRR I | DRB1*01, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | DDQIGYYRRATRR IR | DRB1*15 | 81 | 95 | |
| | | | | QIGYYRRATRRIR GG | DRB1*01 | 83 | 97 | |
| | | | | QIGYYRRATRRIR GG | DRB1*07 | 83 | 97 | |
| | | | | IGYYRRATRRIR GGD | DRB1*04 | 84 | 98 | DR_P06 |
| | | | | IGYYRRATRRIR GGD | DRB1*11 | 84 | 98 | DR_P06 |
| ORF9 nuc | DR_ORF9_C | FYYLGTGPE | DRB1*01, DRB1*03, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | LSPRWYFYYLGTGPE | DRB1*15 | 104 | 118 | |
| | | | | PRWYFYYLGTGPEAG | DRB1*01 | 106 | 120 | |
| | | | | PRWYFYYLGTGPEAG | DRB1*11 | 106 | 120 | |
| | | | | RWYFYYLGTGPEAGL | DRB1*04 | 107 | 121 | DR_P03 |
| | | | | FYYLGTGPEAGLPYG | DRB1*03 | 110 | 124 | |
| | | | | FYYLGTGPEAGLPYG | DRB1*07 | 110 | 124 | |
| ORF9 nuc | DR_ORF9_A | IWWATEGAL | DRB1*01, DRB1*03, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | KDGIWVATEGALNT | DRB1*01 | 127 | 141 | DR_P01 |
| | | | | KDGIWVATEGALNT | DRB1*04 | 127 | 141 | DR_P01 |
| | | | | KDGIWVATEGALNT | DRB1*11 | 127 | 141 | DR_P01 |
| | | | | DGIWVATEGALNTP | DRB1*03 | 128 | 142 | |
| | | | | DGIWVATEGALNTP | DRB1*07 | 128 | 142 | |
| | | | | IWWATEGALNTPKD | DRB1*15 | 130 | 144 | |
| ORF9 nuc | DR_ORF9_I | LQLPQGTTL | DRB1*01, DRB1*03, DRB1*04, DRB1*15 | AAIVLQLPQGTTLPK | DRB1*04 | 155 | 169 | |
| | | | | AIVLQLPQGTTLPKG | DRB1*01 | 156 | 170 | DR_P09 |
| | | | | AIVLQLPQGTTLPKG | DRB1*03 | 156 | 170 | DR_P09 |
| | | | | VLQLPQGTTLPKGFY | DRB1*15 | 158 | 172 | |
| ORF9 nuc | DR_ORF9_G | LDRLNQLES | DRB1*01, DRB1*03, DRB1*04, DRB1*11, DRB1*15 | ALALLLDRLNQLES | DRB1*11 | 218 | 232 | |
| | | | | LALLLDRLNQLESK | DRB1*03 | 219 | 233 | |
| | | | | LLLLDRLNQLESKMS | DRB1*04 | 221 | 235 | DR_P07 |
| | | | | LLLLDRLNQLESKMS | DRB1*15 | 221 | 235 | DR_P07 |
| | | | | LDRLNQLESKMSGKG | DRB1*01 | 224 | 238 | |
| ORF9 nuc | DR_ORF9_J | IAQFAPSAS | DRB1*01, DRB1*04, DRB1*11, DRB1*15 | YKHWPQIAQFAPSAS | DRB1*01 | 298 | 312 | DR_P10 |
| | | | | YKHWPQIAQFAPSAS | DRB1*04 | 298 | 312 | DR_P10 |
| | | | | YKHWPQIAQFAPSAS | DRB1*11 | 298 | 312 | DR_P10 |
| | | | | WPQIAQFAPSASAFF | DRB1*15 | 301 | 315 | |
| ORF9 nuc | DR_ORF9_E | FFGMSRIGM | DRB1*01, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | APSASAFFGMSRIGM | DRB1*15 | 308 | 322 | |
| | | | | ASAFFGMSRIGMEVT | DRB1*01 | 311 | 325 | DR_P05 |
| | | | | ASAFFGMSRIGMEVT | DRB1*04 | 311 | 325 | DR_P05 |
| | | | | ASAFFGMSRIGMEVT | DRB1*07 | 311 | 325 | DR_P05 |
| | | | | ASAFFGMSRIGMEVT | DRB1*11 | 311 | 325 | DR_P05 |
| ORF9 nuc | DR_ORF9_B | TGAIKLDDK | DRB1*01, DRB1*03, DRB1*04, DRB1*07, DRB1*11, DRB1*15 | GTWLTYTGAIKLDDK | DRB1*01 | 328 | 342 | DR_P02 |
| | | | | GTWLTYTGAIKLDDK | DRB1*07 | 328 | 342 | DR_P02 |
| | | | | GTWLTYTGAIKLDDK | DRB1*15 | 328 | 342 | DR_P02 |
| | | | | WLTYTGAIKLDDKDP | DRB1*11 | 330 | 344 | |
| | | | | TGAIKLDDKDPNFKD | DRB1*03 | 334 | 348 | |
| | | | | TGAIKLDDKDPNFKD | DRB1*04 | 334 | 348 | |

| Protein | Cluster ID | Shared core sequence | HLA restrictions covered within cluster | Sequence | HLA restriction | Start position | End position | Peptide ID |
|-------------|------------|----------------------|---|------------------------|-----------------|----------------|--------------|---------------|
| ORF9 nuc | DR_ORF9_H | LDDFSKQLQ | DRB1*01, DRB1*03, DRB1*04, DRB1*07, DRB1*15 | PAADLDDFSKQLQQS | DRB1*03 | 396 | 410 | |
| | | | | AADLDDFSKQLQQSM | DRB1*15 | 397 | 411 | DR_P08 |
| | | | | LDDFSKQLQQSMSSA | DRB1*01 | 400 | 414 | |
| | | | | LDDFSKQLQQSMSSA | DRB1*04 | 400 | 414 | |
| ORF10 | DR_ORF10 | FPFTIYSL | DRB1*01, DRB1*04, DRB1*07, DRB1*15 | INVFAFPFTIYSL | DRB1*01 | 4 | 18 | DR_P20 |
| | | | | INVFAFPFTIYSL | DRB1*04 | 4 | 18 | DR_P20 |
| | | | | VFAFPFTIYSLLCR | DRB1*07 | 6 | 20 | |
| | | | | AFPFTIYSLLCRMN | DRB1*15 | 8 | 22 | |

Cluster-based selection of SARS-CoV-2-derived HLA-DR-binding peptides. Peptides selected for immunogenicity screenings are marked in bold. ID, identification number; spi, spike protein; env, envelope protein; mem, membrane protein; nuc, nucleocapsid protein.

Supplementary Table 3: SARS-CoV-2-derived HLA-DR peptides selected for immunogenicity screening

| Protein | Peptide ID | Cluster ID | Sequence | HLA restriction | Start position | End position | SARS-CoV-1 [%] | Embedded SARS-CoV-2 HLA class I peptides |
|----------|------------|------------|------------------|---|----------------|--------------|----------------|---|
| ORF1 | DR_P11 | DR_ORF1 | LDDFVEIIKSQDLSV | DRB1*11 | 6,751 | 6,765 | 100 | none |
| ORF2 spi | DR_P12 | DR_ORF2_A | ITRFQTLALHRSYL | DRB1*01 | 235 | 249 | 27 | TRFQTLAL (C*07) TLLALHRSY (B*15) LLALHRSYL (A*02) |
| ORF2 spi | DR_P13 | DR_ORF2_B | FNGLTVLPPLLTDEM | DRB1*15 | 855 | 869 | 93 | GLTVLPPL (A*02) |
| ORF3 | DR_P14 | DR_ORF3 | FMRIFTIGTVTLKQG | DRB1*01, DRB1*03, DRB1*07 | 4 | 18 | 47 | RIFTIGTVTL (A*02) RIFTIGTVTLK (A*03, A*11) FTIGTVTLK (A*03, A*11) |
| ORF4 env | DR_P15 | DR_ORF4 | FYVYSRVKNLNSSRV | DRB1*04, DRB1*11 | 56 | 70 | 80 | FYVYSRVKNL (A*24) RVKNLNSSR (A*03) |
| ORF5 mem | DR_P16 | DR_ORF5 | LSYYKLGASQRVAGD | DRB1*04, DRB1*07 | 176 | 190 | 87 | none |
| ORF6 | DR_P17 | DR_ORF6 | IWNLDYIINLIKNL | DRB1*04, DRB1*07, DRB1*15 | 26 | 40 | 60 | NLDYIINLI (A*02) YIINLIKNL (A*02) |
| ORF7 | DR_P18 | DR_ORF7 | QEEVQELYSPIFLIV | DRB1*01, DRB1*07 | 90 | 104 | 87 | VQELYSPIF (B*15) |
| ORF8 | DR_P19 | DR_ORF8 | SKWYIRVGARKSAPL | DRB1*01, DRB1*11 | 43 | 57 | 60 | none |
| ORF9 nuc | DR_P04 | DR_ORF9_D | ASWFTALTQHGKEDL | DRB1*04, DRB1*11 | 50 | 64 | 93 | FTALTQHGK (A*03, A*11) |
| ORF9 nuc | DR_P06 | DR_ORF9_F | IGYYRRATRRIRGGD | DRB1*04, DRB1*11 | 84 | 98 | 93 | YYRRATRR (A*24) |
| ORF9 nuc | DR_P03 | DR_ORF9_C | RWVYFYLGTGPEAGL | DRB1*04 | 107 | 121 | 93 | YVLGTGPEAGL (A*24) YLGTGPEAGL (A*02) |
| ORF9 nuc | DR_P01 | DR_ORF9_A | KDGIWVATEGALNT | DRB1*01, DRB1*04, DRB1*11 | 127 | 141 | 87 | none |
| ORF9 nuc | DR_P09 | DR_ORF9_I | AIVLQLPQGTTLPKG | DRB1*01, DRB1*03 | 156 | 170 | 93 | VLQLPQGTTL (A*02) QLPQGTTLPK (A*03, A*11) |
| ORF9 nuc | DR_P07 | DR_ORF9_G | LLLLDRLNQLSKMS | DRB1*04, DRB1*15 | 221 | 235 | 93 | LLLLDRLNQL (A*02) LLLLDRLNQL (A*02) |
| ORF9 nuc | DR_P10 | DR_ORF9_J | YKHWPQIAQFAPSAS | DRB1*01, DRB1*04, DRB1*11 | 298 | 312 | 100 | none |
| ORF9 nuc | DR_P05 | DR_ORF9_E | ASAFFGMSRIGMEVT | DRB1*01, DRB1*04, DRB1*07, DRB1*11 | 311 | 325 | 100 | ASAFFGMSR (A*11) |
| ORF9 nuc | DR_P02 | DR_ORF9_B | GTWLTYTGAIKLDDK | DRB1*01, DRB1*07, DRB1*15 | 328 | 342 | 93 | GTWLTYTGAIK (A*11) WLTYTGAIK (A*03) |
| ORF9 nuc | DR_P08 | DR_ORF9_H | AADLDDFSKQLQSQSM | DRB1*15 | 397 | 411 | 80 | none |
| ORF10 | DR_P20 | DR_ORF10 | INVFAFPFTIYSLLL | DRB1*01, DRB1*04 | 4 | 18 | 0 | NVFAFPFTIY (B*15) AFPFTIYSL (A*24) AFPFTIYSL (A*24) FPFTIYSL (B*07) FPFTIYSLLL (B*07) |

Sequences of predicted SARS-CoV-2-derived HLA class I-binding peptides embedded in the HLA-DR-binding peptides and included in the immunogenicity screening are marked in bold. Percentage of SARS-CoV-1 indicates the similarity of the amino acid sequence of the SARS-CoV-2-derived peptide to the respective peptide sequence of SARS-CoV-1. ID, identification number; spi, spike protein; env, envelope protein; mem, membrane protein; nuc, nucleocapsid protein.

Supplementary Table 4: Recurrent mutations of SARS-CoV-2 ORFs within predicted HLA class I peptide sequences

| Protein | Peptide ID | Mutation | Peptide sequence | | Freq. | HLA | SYFP. score [%] | | Ratio SYFP. | NetMHC rank | | Ratio NetMHC | Mean ratio |
|-------------|----------------|----------|------------------|--------------|-------|------|-----------------|------|-------------|-------------|-------|--------------|------------|
| | | | WT | Mut | | | WT | Mut | | WT/Mut | WT | | |
| ORF1 | <i>C07_P01</i> | T2174S | NYMPYFFTL | NYMPYFFSL | 1% | C*07 | 86.7 | 86.7 | 1.00 | 0.01 | 0.02 | 0.78 | 0.89 |
| ORF1 | <i>A11_P01</i> | M2194T | ASMPPTIAK | ASTPPTIAK | 1% | A*11 | 82.4 | 82.4 | 1.00 | 0.00 | 0.02 | 0.21 | 0.60 |
| ORF1 | <i>B08_P06</i> | L2609H | VPMEKLLKTL | VPMEKHKTL | 1% | B*08 | 69.8 | 69.8 | 1.00 | 0.01 | 0.01 | 1.43 | 1.22 |
| ORF2 spi | <i>C07_P09</i> | P1143L | VYDPLQPEL | VYDPLQLEL | 1% | C*07 | 76.7 | 80.0 | 1.04 | 0.08 | 0.05 | 1.65 | 1.35 |
| ORF2 spi | <i>B40_P02</i> | E1262G | SEPVLKGVKL | SGPVLKGVKL | 1% | B*40 | 90.6 | 59.4 | 0.66 | 0.29 | 15.65 | 0.02 | 0.34 |
| ORF2 spi | <i>B08_P02</i> | E1262G | EPVLKGVKL | GPVLKGVKL | 1% | B*08 | 69.8 | 67.4 | 0.97 | 0.17 | 0.39 | 0.44 | 0.70 |
| ORF7 | <i>A11_P07</i> | H73Q | GVKHHVYQLR | GVKQVYQLR | 1% | A*11 | 67.7 | 67.7 | 1.00 | 1.80 | 1.77 | 1.02 | 1.01 |
| ORF8 | <i>A01_P07</i> | V62L | VDEAGSKSPIQY | LDEAGSKSPIQY | 5% | A*01 | 73.2 | 70.7 | 0.97 | 1.23 | 1.24 | 0.99 | 0.98 |
| ORF9 nuc | <i>A03_P09</i> | P344S | KLDDKDPNFK | KLDDKDSNFK | 2% | A*03 | 80.7 | 80.7 | 1.00 | 0.32 | 0.38 | 0.82 | 0.91 |
| ORF10 | <i>B15_P10</i> | I13M | NVFAFPFTIY | NVFAFPFTMY | 1% | B*15 | 60.6 | 60.6 | 1.00 | 1.37 | 1.63 | 0.84 | 0.92 |
| ORF10 | <i>B07_P09</i> | I13M | FPFTIYSLLL | FPFTMYSLLL | 1% | B*07 | 73.3 | 73.3 | 1.00 | 1.63 | 1.96 | 0.83 | 0.91 |

Recurrent mutations described in the literature within SARS-CoV-2-derived HLA class I-binding peptides selected for immunogenicity screening. The mutation site is marked in bold. Peptide IDs of immunogenic peptides are marked in italic. ID, identification number; WT, wild-type sequence referring to the reference sequence of SARS-CoV-2; Mut, mutated sequence referring to described mutations by Wang *et al.* 2020 J med virology and Phan *et al.* 2020 Infection, Genetics and Evolution; Freq., frequency; SYFP., SYFPEITHI; spi, spike protein; nuc, nucleocapsid protein.

Supplementary Table 5: Recurrent mutations of SARS-CoV-2 ORFs within predicted HLA-DR peptide sequences

| ORF | Peptide ID | Mutation | Peptide sequence | | Freq. | HLA |
|-------------|---------------|--------------|--------------------------|---|---------------|---------|
| | | | WT | Mut | | |
| ORF2 spi | <i>DR_P13</i> | V860Q, L861K | FNGLT VL PPLLTDEM | FNGLT QL PPLLTDEM, FNGLT VK PPLLTDEM | 3.2%, 2.1% | DRB1*15 |
| ORF2 spi | <i>DR_P12</i> | S247R | ITRFQ TLL ALHRSYL | ITRFQ TLL ALHRRYL | 1.1% | DRB1*01 |

Recurrent mutations described in the literature within SARS-CoV-2-derived HLA-DR-binding peptides selected for immunogenicity screening. The mutation site is marked in bold. Peptide IDs of immunogenic peptides are marked in italic. ID, identification number; WT, wild-type sequence referring to the reference sequence of SARS-CoV-2; Mut, mutated sequence referring to described mutations by Wang *et al.* 2020 J med virology and Phan *et al.* 2020 Infection, Genetics and Evolution; Freq., frequency; spi, spike protein.

Supplementary Table 6: Characteristics of individual SARS donors

| Donor ID | Sex | Age | HLA type | Included in group 1 | Included in group 2 |
|----------|--------|-----|------------------------------------|---------------------|---------------------|
| SARS002 | male | 28 | A*02, A*68, B*44, B*51, C*05, C*15 | yes | no |
| SARS003 | male | 22 | A*02, B*07, C*07 | yes | no |
| SARS004 | male | 28 | A*01, B*08, B*40, C*02, C*07 | yes | no |
| SARS005 | male | 28 | A*03, A*24, B*35, C*04 | yes | no |
| SARS011 | male | 29 | A*01, A*32, B*08, B*27, C*02, C*07 | yes | no |
| SARS012 | female | 51 | A*02, B*07, B*15, C*03, C*07 | yes | no |
| SARS013 | male | 55 | A*32, A*68, B*44, B*51, C*05, C*15 | yes | no |
| SARS014 | male | 39 | A*03, A*24, B*07, B*52, C*07, C*12 | yes | no |
| SARS015 | female | 23 | A*03, A*11, B*38, B*56, C*01, C*12 | yes | no |
| SARS016 | female | 56 | A*01, B*08, B*44, C*05, C*07 | yes | no |
| SARS017 | male | 54 | A*01, A*02, B*07, B*37, C*06, C*07 | yes | no |
| SARS018 | male | 55 | A*01, A*02, B*15, B*51, C*01, C*15 | yes | no |
| SARS019 | male | 36 | A*24, A*68, B*14, B*18, C*07, C*08 | yes | no |
| SARS021 | female | 31 | A*02, A*68, B*35, B*44, C*04, C*05 | yes | no |
| SARS022 | female | 44 | A*01, A*02, B*08, B*15, C*07 | yes | no |
| SARS023 | female | 45 | n.a. | yes | no |
| SARS024 | male | 28 | A*01, A*02, B*08, B*49, C*07 | yes | no |
| SARS025 | male | 48 | A*02, A*03, B*07, B*57, C*06, C*07 | yes | no |
| SARS026 | male | 56 | A*02, A*68, B*14, B*44, C*04, C*08 | yes | no |
| SARS028 | female | 23 | A*01, A*02, B*08, B*40, C*03, C*07 | yes | no |
| SARS029 | male | 56 | A*02, A*03, B*08, B*40, C*03, C*07 | yes | no |
| SARS030 | female | 20 | A*31, A*68, B*40, B*44, C*03, C*07 | yes | no |
| SARS031 | male | 50 | A*23, B*44, C*04 | yes | no |
| SARS032 | female | 36 | A*01, A*24, B*08, B*40, C*02, C*07 | yes | no |
| SARS033 | male | 43 | A*02, B*18, B*51, C*07, C*14 | yes | no |
| SARS034 | male | 38 | A*01, A*29, B*08, B*18, C*05, C*07 | yes | no |
| SARS035 | male | 58 | A*01, A*11, B*08, B*15, C*07, C*04 | yes | no |
| SARS036 | male | 44 | A*03, B*07, B*35, C*04, C*07 | yes | no |
| SARS037 | female | 50 | A*01, A*24, B*08, B*35, C*04, C*07 | yes | no |
| SARS038 | female | 45 | A*02, A*03, B*07, B*44, C*05, C*07 | yes | no |
| SARS039 | male | 47 | A*24, B*18, B*35, C*04, C*07 | yes | no |
| SARS040 | male | 61 | A*11, A*24, B*07, B*08, C*04, C*07 | yes | no |
| SARS041 | female | 50 | A*02, B*18, B*35, C*04, C*07 | yes | no |
| SARS042 | male | 52 | A*01, A*02, B*37, B*40, C*03, C*06 | yes | no |
| SARS043 | male | 25 | A*02, A*31, B*07, B*35, C*04, C*07 | yes | no |
| SARS044 | female | 55 | A*01, B*07, B*40, C*03, C*07 | yes | no |
| SARS045 | female | 52 | A*02, A*03, B*07, B*35, C*07 | yes | no |
| SARS046 | female | 58 | A*01, A*24, B*15, B*57, C*03, C*07 | yes | no |
| SARS047 | male | 60 | A*02, B*40, C*03 | yes | no |
| SARS048 | female | 38 | A*02, A*03, B*07, B*35, C*04, C*07 | no | yes |
| SARS049 | male | 50 | A*02, B*44, B*57, C*05, C*06 | yes | yes |
| SARS050 | female | 34 | A*01, A*03, B*35, B*57, C*04, C*06 | yes | yes |
| SARS051 | female | 58 | A*31, A*33, B*14, B*40, C*03, C*08 | yes | yes |
| SARS052 | male | 58 | A*24, A*25, B*27, B*44, C*02 | yes | no |
| SARS053 | female | 41 | A*24, A*33, B*27, B*44, C*02 | yes | no |
| SARS054 | female | 23 | A*02, A*03, B*07, B*44, C*07, C*05 | no | yes |
| SARS055 | male | 51 | A*02, A*31, B*51, C*02, C*15 | no | yes |
| SARS056 | female | 28 | A*02, A*03, B*40, B*47, C*03, C*06 | yes | yes |
| SARS057 | male | 59 | A*02, A*11, B*08, B*14, C*07, C*08 | yes | no |
| SARS058 | female | 55 | A*26, A*33, B*40, B*51, C*03, C*16 | yes | yes |
| SARS059 | male | 29 | A*01, A*30, B*15, B*56, C*01, C*04 | yes | no |
| SARS060 | female | 59 | A*24, A*30, B*13, B*35, C*04, C*06 | yes | no |
| SARS061 | male | 44 | A*01, A*02, B*35, B*44, C*04, C*05 | yes | no |
| SARS062 | female | 44 | A*02, A*03, B*07, B*35, C*04, C*07 | yes | no |
| SARS063 | male | 40 | A*11, A*32, B*15, B*35, C*07, C*12 | yes | no |
| SARS064 | male | 36 | A*01, A*33, B*08, B*14, C*07, C*08 | yes | no |
| SARS065 | female | 59 | A*01, A*02, B*18, B*55, C*01, C*07 | yes | no |
| SARS066 | female | 53 | A*03, B*35, B*40, C*02, C*12 | yes | no |
| SARS067 | female | 53 | A*01, A*03, B*08, B*13, C*06, C*07 | yes | no |
| SARS068 | female | 48 | A*03, A*24, B*15, B*35, C*03, C*04 | yes | no |
| SARS069 | female | 54 | A*01, A*11, B*08, B*35, C*07, C*04 | yes | no |

| Donor ID | Sex | Age | HLA type | Included in group 1 | Included in group 2 |
|----------|--------|-----|------------------------------------|---------------------|---------------------|
| SARS070 | female | 70 | A*02, B*27, B*40, C*01, C*03 | yes | no |
| SARS071 | female | 39 | A*02, A*23, B*44, B*53, C*04 | yes | no |
| SARS073 | male | 50 | A*02, A*03, B*27, B*44, C*01, C*04 | yes | yes |
| SARS074 | female | 26 | A*26, A*31, B*49, B*51, C*07, C*14 | yes | yes |
| SARS075 | female | 23 | A*01, A*23, B*13, B*44, C*04, C*06 | yes | no |
| SARS076 | male | 51 | A*03, A*11, B*40, B*55, C*02, C*03 | yes | no |
| SARS077 | male | 24 | A*26, A*31, B*07, B*56, C*01, C*07 | yes | no |
| SARS078 | male | 35 | A*02, A*68, B*44, C*07 | yes | no |
| SARS079 | female | 25 | A*26, A*03, B*07, B*35, C*04, C*07 | yes | no |
| SARS080 | female | 40 | A*01, A*02, B*37, B*44, C*05, C*06 | yes | yes |
| SARS081 | male | 45 | A*26, A*02, B*39, B*44, C*05, C*12 | no | yes |
| SARS082 | male | 58 | A*02, A*03, B*07, B*35, C*04, C*07 | yes | no |
| SARS083 | male | 43 | A*02, A*29, B*08, B*40, C*07, C*03 | yes | yes |
| SARS084 | female | 54 | A*01, A*03, B*35, B*44, C*04, C*05 | yes | no |
| SARS085 | female | 21 | A*03, A*24, B*27, B*40, C*02, C*03 | no | yes |
| SARS087 | female | 29 | A*01, A*26, B*38, B*57, C*06, C*12 | yes | no |
| SARS088 | male | 22 | A*11, A*24, B*15, B*51, C*07, C*15 | yes | no |
| SARS090 | male | 32 | A*03, B*35, C*04 | yes | yes |
| SARS091 | female | 36 | A*01, B*08, C*07 | yes | no |
| SARS092 | male | 36 | A*24, A*68, B*18, B*51, C*01, C*05 | yes | no |
| SARS093 | female | 57 | A*01, A*24, B*08, B*27, C*01, C*07 | yes | yes |
| SARS094 | female | 32 | A*01, A*03, B*49, B*07, C*06, C*07 | no | yes |
| SARS095 | male | 55 | A*30, A*68, B*35, B*49, C*04, C*07 | no | yes |
| SARS096 | female | 48 | A*02, , B*40, B*44, C*03, C*05 | yes | no |
| SARS098 | male | 31 | A*01, B*08, C*07 | yes | no |
| SARS099 | male | 65 | A*02, A*24, B*07, B*44, C*05, C*07 | no | yes |
| SARS101 | male | 52 | A*02, B*15, B*55, C*03 | yes | yes |
| SARS102 | female | 18 | A*03, A*29, B*35, B*44, C*04, C*16 | yes | yes |
| SARS103 | female | 30 | A*23, A*25, B*44, B*49, C*05, C*07 | yes | no |
| SARS104 | female | 40 | A*02, A*03, B*15, B*56, C*04, C*07 | no | yes |
| SARS105 | male | 72 | A*01, A*02, B*08, B*51, C*07, C*15 | yes | no |
| SARS106 | female | 75 | A*02, A*25, B*51, C*01, C*12 | yes | yes |
| SARS107 | female | 37 | A*68, B*27, B*39, C*02, C*07 | no | yes |
| SARS108 | female | 47 | A*01, A*11, B*08, B*40, C*03, C*07 | yes | no |
| SARS109 | female | 40 | A*02, A*03, B*07, B*35, C*04, C*07 | yes | no |
| SARS110 | male | 39 | A*24, A*30, B*18, B*35, C*05, C*12 | yes | yes |
| SARS114 | male | 49 | A*02, A*24, B*07, B*35, C*04, C*07 | no | yes |
| SARS115 | male | 25 | A*02, B*13, B*15, C*03, C*06 | yes | no |
| SARS116 | male | 18 | A*02, A*24, B*18, B*40, C*03, C*07 | no | yes |
| SARS117 | female | 72 | A*02, A*30, B*50, B*57, C*06 | yes | no |
| SARS119 | male | 43 | A*01, A*02, B*08, B*27, C*02, C*07 | yes | no |
| SARS120 | male | 47 | A*03, A*30, B*13, B*15, C*03, C*06 | no | yes |
| SARS121 | female | 64 | A*01, A*24, B*44, B*57, C*04, C*06 | no | yes |
| SARS122 | male | 51 | A*02, A*24, B*15, C*03 | yes | yes |
| SARS123 | male | 44 | A*24, A*30, B*13, B*27, C*02, C*06 | yes | yes |
| SARS124 | male | 50 | A*24, A*32, B*27, , C*02 | yes | no |
| SARS126 | male | 60 | A*02, A*03, B*35, B*47, C*04, C*06 | yes | no |
| SARS127 | male | 53 | A*24, A*30, B*15, B*44, C*04, C*07 | no | yes |
| SARS129 | male | 65 | A*01, A*32, B*37, B*51, C*06, C*15 | yes | no |
| SARS130 | female | 32 | A*02, A*24, B*07, B*40, C*03, C*07 | no | yes |
| SARS131 | male | 49 | A*03, A*32, B*40, B*49, C*03, C*07 | no | yes |
| SARS132 | male | 36 | A*02, B*37, B*44, C*06, C*07 | yes | no |
| SARS134 | female | 24 | A*02, A*03, B*07, B*57, C*07, C*12 | no | yes |
| SARS135 | female | 49 | A*03, B*07, B*18, C*07, C*12 | no | yes |
| SARS140 | female | 24 | A*02, B*14, B*49, C*07, C*08 | no | yes |
| SARS142 | female | 53 | A*02, A*32, B*44, B*56, C*01, C*05 | no | yes |
| SARS143 | male | 56 | A*01, A*68, B*08, B*27, C*02, C*07 | no | yes |
| SARS144 | female | 29 | A*24, B*38, B*44, C*07, C*12 | no | yes |
| SARS147 | female | 42 | A*01, A*02, B*07, B*08, C*07 | yes | no |
| SARS148 | male | 26 | A*02, B*18, B*49, C*07, C*12 | no | yes |
| SARS149 | male | 32 | A*03, A*25, B*18, B*35, C*04, C*12 | yes | no |
| SARS150 | male | 41 | A*03, A*23, B*44, C*05, C*07 | yes | no |
| SARS153 | male | 61 | A*01, A*29, B*15, B*45, C*03, C*06 | yes | no |

| Donor ID | Sex | Age | HLA type | Included in group 1 | Included in group 2 |
|----------|--------|-----|------------------------------------|---------------------|---------------------|
| SARS154 | female | 60 | A*23, A*30, B*13, B*40, C*03, C*06 | no | yes |
| SARS155 | male | 63 | A*02, A*23, B*27, B*44, C*02, C*04 | no | yes |
| SARS157 | male | 30 | A*02, A*68, B*14, B*44, C*05, C*08 | no | yes |
| SARS158 | female | 38 | A*02, A*03, B*51, C*07, C*15 | yes | no |
| SARS159 | male | 54 | A*01, A*31, B*08, B*51, C*07, C*15 | yes | no |
| SARS160 | male | 26 | A*03, A*11, B*35, B*56, C*01, C*04 | yes | yes |
| SARS161 | male | 29 | A*02, A*11, B*35, C*03, C*04 | yes | no |
| SARS163 | male | 25 | A*25, A*30, B*13, B*18, C*06, C*12 | no | yes |
| SARS164 | male | 22 | A*24, A*26, B*07, B*15, C*03, C*07 | no | yes |
| SARS165 | male | 50 | A*01, B*15, B*37, C*03, C*06 | no | yes |
| SARS166 | female | 70 | A*02, A*32, B*40, B*44, C*02, C*05 | yes | yes |
| SARS167 | male | 32 | A*02, A*23, B*44, C*04 | no | yes |
| SARS168 | female | 32 | A*01, A*26, B*08, B*51, C*07, C*15 | yes | no |
| SARS169 | male | 50 | A*02, A*03, B*13, B*15, C*06, C*12 | no | yes |
| SARS170 | female | 59 | A*30, A*31, B*51, B*58, C*07, C*15 | no | yes |
| SARS172 | male | 47 | A*29, A*68, B*40, B*44, C*03, C*16 | no | yes |
| SARS174 | female | 46 | A*29, A*32, B*15, B*51, C*04, C*07 | no | yes |
| SARS175 | female | 32 | A*11, A*24, B*44, B*51, C*01, C*04 | yes | yes |
| SARS176 | male | 34 | A*03, B*07, B*44, C*05, C*07 | no | yes |
| SARS177 | male | 59 | A*01, A*68, B*08, B*18, C*05, C*07 | no | yes |
| SARS178 | female | 20 | A*02, C*07, C*08 | yes | no |
| SARS179 | female | 43 | A*03, A*11, B*13, B*55, C*03, C*06 | yes | yes |
| SARS183 | male | 32 | A*01, A*02, B*08, B*14, C*07, C*08 | no | yes |
| SARS184 | female | 25 | A*03, B*07, B*35, C*04, C*07 | yes | no |
| SARS186 | female | 55 | A*03, A*23, B*18, B*51, C*01, C*07 | yes | no |
| SARS187 | male | 62 | A*02, B*07, B*44, C*05, C*07 | yes | no |
| SARS189 | female | 58 | A*11, A*24, B*18, B*35, C*04, C*07 | no | yes |
| SARS190 | male | 66 | A*02, A*26, B*44, B*57, C*02, C*06 | no | yes |
| SARS191 | male | 59 | A*02, A*24, B*15, B*51, C*03, C*14 | no | yes |
| SARS192 | female | 57 | A*03, A*33, B*07, B*27, C*02, C*07 | yes | no |
| SARS195 | female | 33 | A*01, A*29, B*08, B*44, C*07, C*16 | no | yes |
| SARS197 | female | 61 | A*01, A*02, B*08, B*56, C*01, C*07 | no | yes |
| SARS198 | male | 48 | A*11, A*29, B*44, C*03, C*16 | yes | yes |
| SARS199 | female | 43 | A*01, A*68, B*07, B*51, C*07, C*15 | no | yes |
| SARS201 | female | 53 | A*02, A*32, B*15, B*40, C*02, C*04 | no | yes |
| SARS202 | female | 27 | A*32, A*33, B*14, C*08 | no | yes |
| SARS203 | male | 30 | A*02, A*32, B*15, B*40, C*02, C*07 | no | yes |
| SARS204 | female | 35 | A*24, B*13, B*35, C*04, C*06 | no | yes |
| SARS207 | male | 29 | A*02, A*24, B*27, B*40, C*02, C*03 | no | yes |
| SARS208 | male | 55 | A*03, A*24, B*27, B*52, C*02, C*12 | no | yes |
| SARS209 | male | 30 | A*02, A*03, B*08, C*07 | no | yes |
| SARS210 | male | 29 | A*01, A*02, B*08, B*27, C*02, C*07 | no | yes |
| SARS212 | male | 59 | A*02, B*07, B*40, C*03, C*07 | no | yes |
| SARS216 | male | 29 | A*01, A*25, B*08, B*18, C*07, C*12 | no | yes |
| SARS218 | female | 27 | A*02, A*32, B*38, B*40, C*03, C*12 | no | yes |
| SARS220 | male | 38 | A*01, A*03, B*07, B*08, C*07 | yes | no |
| SARS224 | female | 32 | A*03, A*25, B*35, B*58, C*04, C*07 | no | yes |
| SARS225 | male | 24 | A*01, A*02, B*38, C*12 | no | yes |
| SARS227 | female | 56 | A*01, A*02, B*08, B*50, C*06, C*07 | no | yes |
| SARS228 | female | 42 | A*01, A*02, B*44, B*51, C*02, C*16 | yes | no |
| SARS229 | female | 55 | A*30, A*31, B*08, B*15, C*03, C*07 | no | yes |
| SARS231 | female | 27 | A*02, A*31, B*27, B*40, C*01, C*02 | no | yes |
| SARS238 | female | 37 | A*01, A*30, B*08, B*13, C*06, C*07 | no | yes |
| SARS239 | female | 60 | A*01, A*33, B*08, B*14, C*07, C*08 | no | yes |
| SARS240 | female | 44 | A*02, A*03, B*35, B*44, C*04, C*05 | no | yes |
| SARS241 | female | 45 | A*03, A*11, B*40, B*51, C*03, C*15 | no | yes |

n.a., not available.

Supplementary Table 7: Characteristics of individual PRE donors never exposed to SARS-CoV-2

| Donor ID | Sex | Age | HLA type | Included in group A | Included in group B |
|----------|--------|------|------------------------|---------------------|---------------------|
| PRE001 | female | 39 | A*01, B*08, B*57 | yes | no |
| PRE005 | male | 44 | A*01, A*30, B*08, B*13 | yes | no |
| PRE007 | male | 21 | A*01, A*26, B*14, B*57 | yes | no |
| PRE008 | male | 51 | A*01, A*28, B*15, B*57 | yes | no |
| PRE009 | male | 48 | A*01, A*03, B*15, B*35 | yes | no |
| PRE011 | female | 41 | A*01, B*08, B*37 | yes | yes |
| PRE012 | male | 58 | A*01, A*24, B*08, B*27 | yes | no |
| PRE016 | female | 29 | A*02, A*28, B*14, B*27 | yes | no |
| PRE017 | male | 56 | A*02, A*26, B*38, B*49 | yes | no |
| PRE018 | female | 41 | A*02, A*23, B*40, B*49 | yes | no |
| PRE020 | male | 45 | A*02, A*24, B*07, B*35 | yes | no |
| PRE021 | male | 50 | A*02, A*34, B*14, B*45 | yes | no |
| PRE022 | male | 46 | A*02, A*24, B*07, B*35 | yes | no |
| PRE023 | female | 25 | A*02, A*03, B*35, B*44 | yes | yes |
| PRE024 | male | 44 | A*02, A*23, B*44 | yes | no |
| PRE025 | female | 51 | A*01, A*03, B*08 | yes | no |
| PRE027 | male | 24 | A*03, B*07, B*08 | yes | no |
| PRE028 | male | 52 | A*01, A*03, B*08, B*38 | yes | no |
| PRE029 | male | 29 | A*01, A*03, B*08, B*15 | yes | no |
| PRE030 | male | 67 | A*01, A*03, B*07, B*08 | yes | no |
| PRE031 | male | 49 | A*02, A*03, B*08, B*15 | yes | yes |
| PRE032 | female | 24 | A*01, A*03, B*07, B*08 | yes | yes |
| PRE033 | male | 56 | A*03, A*11, B*07, B*08 | yes | no |
| PRE034 | male | 55 | A*01, A*03, B*08, B*51 | yes | no |
| PRE035 | male | 52 | A*01, A*03, B*08, B*35 | yes | yes |
| PRE036 | male | 64 | A*01, A*03, B*08, B*35 | yes | no |
| PRE037 | male | 28 | A*03, A*11, B*15, B*38 | yes | no |
| PRE038 | male | 29 | A*03, A*11, B*15, B*38 | yes | no |
| PRE039 | female | 52 | A*03, A*11, B*15, B*35 | yes | no |
| PRE040 | male | 34 | A*02, A*11, B*15, B*39 | yes | no |
| PRE041 | female | 53 | A*03, A*11, B*15, B*35 | yes | no |
| PRE042 | female | 31 | A*11, A*26, B*38, B*55 | yes | no |
| PRE044 | male | 33 | A*11, A*32, B*35, B*40 | yes | no |
| PRE045 | male | 26 | A*11, A*31, B*18, B*39 | yes | no |
| PRE046 | male | 53 | A*01, A*11, B*08, B*44 | yes | no |
| PRE047 | male | 24 | A*11, A*24, B*35, B*57 | yes | yes |
| PRE048 | female | 30 | A*11, B*44, B*55 | yes | no |
| PRE049 | male | 44 | A*01, A*02, B*15, B*55 | yes | no |
| PRE051 | male | 33 | A*03, A*28, B*15, B*38 | yes | no |
| PRE052 | male | 42 | A*02, A*23, B*15, B*50 | yes | no |
| PRE053 | male | 55 | A*02, A*26, B*15, B*44 | yes | no |
| PRE054 | female | 54 | A*01, A*02, B*15, B*18 | yes | yes |
| PRE055 | female | 39 | A*02, A*03, B*15, B*41 | yes | no |
| PRE059 | female | 22 | A*01, A*24, B*18, B*57 | yes | no |
| PRE063 | n.a. | n.a. | A*03, A*24, B*13, B*50 | yes | no |
| PRE064 | male | 34 | A*02, A*24, B*35, B*38 | yes | no |
| PRE066 | male | 43 | A*03, A*24, B*07, B*35 | yes | no |
| PRE067 | male | 65 | A*02, A*24, B*07 | yes | no |
| PRE068 | male | 70 | A*02, A*03, B*35, B*40 | yes | no |
| PRE069 | male | 32 | A*02, B*40, B*44 | yes | no |
| PRE070 | n.a. | n.a. | A*03, A*30, B*18, B*40 | yes | no |
| PRE071 | male | 57 | A*11, A*33, B*14, B*40 | yes | no |
| PRE072 | male | 49 | A*23, A*28, B*40, B*44 | yes | no |
| PRE073 | male | 60 | A*02, A*11, B*40, B*55 | yes | no |
| PRE074 | male | 25 | A*02, B*40, B*51 | yes | no |
| PRE075 | female | 40 | A*02, A*29, B*40, B*44 | yes | no |
| PRE076 | male | 60 | A*02, B*15, B*40 | yes | no |
| PRE078 | male | 67 | B*07, B*18 | yes | no |
| PRE079 | male | 35 | A*03, A*11, B*07, B*35 | yes | no |
| PRE080 | male | 68 | A*24, A*26, B*07, B*35 | yes | no |
| PRE081 | female | 46 | A*03, A*32, B*07, B*40 | yes | no |

| Donor ID | Sex | Age | HLA type | Included in group A | Included in group B |
|----------|--------|------|------------------------|---------------------|---------------------|
| PRE083 | female | 46 | A*25, A*32, B*07, B*44 | yes | no |
| PRE084 | male | 37 | A*03, A*32, B*07, B*51 | yes | no |
| PRE085 | male | 45 | A*01, A*11, B*07, B*14 | yes | no |
| PRE086 | male | 26 | A*01, A*24, B*07, B*18 | yes | no |
| PRE087 | female | 55 | A*23, A*31, B*07, B*49 | yes | yes |
| PRE088 | male | 64 | A*02, B*07, B*51 | yes | no |
| PRE090 | male | 35 | A*01, B*40, B*55 | yes | no |
| PRE091 | n.a. | n.a. | n.a. | yes | no |
| PRE094 | male | 30 | A*23, A*32, B*40, B*44 | yes | no |
| PRE095 | male | 57 | A*28, A*30, B*13, B*38 | yes | no |
| PRE096 | female | 50 | A*24, A*32, B*14, B*38 | yes | no |
| PRE097 | female | 48 | A*01, A*32, B*51, B*58 | yes | no |
| PRE098 | male | 47 | A*03, A*25, B*51, B*18 | yes | no |
| PRE099 | male | 27 | A*03, A*24, B*07, B*15 | yes | yes |
| PRE100 | female | 48 | A*02, A*25, B*07, B*51 | yes | no |
| PRE102 | male | 22 | A*01, A*02, B*15, B*57 | yes | no |
| PRE103 | male | 21 | A*01, A*02, B*18, B*37 | yes | no |
| PRE104 | male | 48 | A*01, B*40, B*44 | yes | no |
| PRE105 | male | n.a. | A*01, A*32, B*14, B*49 | yes | no |
| PRE107 | male | 55 | A*01, A*32, B*18, B*35 | yes | no |
| PRE108 | male | 23 | A*01, A*28, B*35, B*57 | yes | no |
| PRE109 | male | 63 | A*01, A*30, B*13, B*58 | yes | no |
| PRE110 | male | 47 | A*01, A*25, B*18, B*57 | yes | no |
| PRE111 | male | 52 | A*01, A*02, B*08, B*44 | yes | no |
| PRE112 | male | 43 | A*01, A*24, B*08, B*57 | yes | yes |
| PRE114 | male | 47 | A*24, A*32, B*07, B*35 | yes | no |
| PRE116 | male | 25 | A*24, A*28, B*13, B*55 | yes | no |
| PRE117 | n.a. | n.a. | A*03, A*24, B*35 | yes | no |
| PRE118 | male | 38 | A*03, A*24, B*35, B*57 | yes | no |
| PRE120 | male | 48 | A*02, A*24, B*18, B*49 | yes | no |
| PRE121 | male | 55 | A*24, A*31, B*14, B*40 | yes | no |
| PRE122 | male | 52 | A*02, A*24, B*50, B*51 | yes | no |
| PRE123 | male | 43 | A*03, A*24, B*07, B*51 | yes | yes |
| PRE124 | male | 57 | A*01, A*03, B*35, B*40 | no | yes |
| PRE126 | male | 47 | A*02, A*32, B*07, B*44 | yes | no |
| PRE127 | male | 36 | A*01, A*02, B*35 | yes | no |
| PRE128 | male | 35 | A*32, B*40, B*44 | yes | no |
| PRE129 | male | 22 | n.a. | yes | no |
| PRE130 | male | 53 | A*28, A*32, B*35, B*40 | yes | no |
| PRE133 | male | 68 | A*23, A*32, B*38, B*44 | yes | no |
| PRE135 | female | 31 | A*02, A*03, B*13, B*35 | yes | no |
| PRE136 | female | 60 | A*25, A*29, B*44 | yes | no |
| PRE137 | female | 58 | A*01, A*24, B*07, B*08 | no | yes |
| PRE139 | male | 56 | A*01, A*03, B*07, B*14 | no | yes |
| PRE140 | male | 33 | A*02, A*11, B*35, B*51 | no | yes |
| PRE141 | male | 65 | A*02, A*30, B*35, B*57 | no | yes |
| PRE143 | male | 60 | A*01, A*02, B*08, B*44 | no | yes |
| PRE144 | male | 52 | A*01, A*23, B*08, B*40 | no | yes |
| PRE146 | male | 42 | A*01, A*02, B*15, B*57 | no | yes |
| PRE149 | male | 50 | A*01, A*02, B*08, B*15 | no | yes |
| PRE150 | female | 52 | A*03, A*24, B*13, B*15 | no | yes |
| PRE151 | male | 55 | A*01, A*02, B*49, B*51 | no | yes |
| PRE152 | female | 42 | A*02, A*03, B*51 | no | yes |
| PRE154 | male | 24 | A*01, A*24, B*07, B*08 | no | yes |
| PRE155 | male | 52 | A*01, A*03, B*07, B*08 | no | yes |
| PRE156 | male | 67 | A*03, B*29, B*07, B*44 | no | yes |
| PRE157 | male | 57 | A*03, A*28, B*07, B*51 | no | yes |
| PRE158 | female | 52 | A*02, A*11, B*08, B*35 | no | yes |
| PRE159 | male | 27 | A*02, A*03, B*41, B*51 | no | yes |
| PRE160 | male | 29 | A*01, A*24, B*08, B*44 | no | yes |
| PRE161 | male | 57 | A*24, A*32, B*07, B*14 | no | yes |
| PRE164 | male | 47 | A*01, A*32, B*08, B*39 | no | yes |
| PRE165 | male | 53 | A*02, A*26, B*07, B*38 | no | yes |

| Donor ID | Sex | Age | HLA type | Included in group A | Included in group B |
|----------|--------|------|------------------------|---------------------|---------------------|
| PRE166 | male | 30 | A*03, A*11, B*07, B*35 | no | yes |
| PRE167 | male | 42 | A*01, A*24, B*08, B*57 | no | yes |
| PRE168 | female | 66 | A*01, A*24, B*08, B*08 | no | yes |
| PRE169 | male | 50 | A*01, A*02, B*08, B*15 | no | yes |
| PRE170 | male | 32 | A*01, A*11, B*07, B*08 | no | yes |
| PRE171 | female | 54 | A*02, B*07, B*40 | no | yes |
| PRE172 | male | 26 | A*01, A*02, B*08, B*44 | no | yes |
| PRE173 | male | 61 | A*01, A*26, B*15, B*40 | no | yes |
| PRE174 | male | 39 | A*03, A*32, B*40 | no | yes |
| PRE175 | male | 25 | A*01, A*24, B*07, B*08 | no | yes |
| PRE176 | female | 47 | A*03, A*32, B*07, B*27 | no | yes |
| PRE177 | male | 44 | A*23, A*28, B*07, B*44 | no | yes |
| PRE178 | male | 57 | A*01, A*02, B*08, B*50 | no | yes |
| PRE179 | male | 55 | A*03, A*26, B*07, B*38 | no | yes |
| PRE181 | male | 40 | A*01, A*02, B*08, B*44 | no | yes |
| PRE182 | male | 66 | A*03, A*24, B*08, B*35 | no | yes |
| PRE183 | male | 31 | A*01, A*02, B*08, B*57 | no | yes |
| PRE186 | male | 39 | A*03, A*28, B*15, B*38 | no | yes |
| PRE187 | male | 26 | A*02, A*03, B*44, B*51 | no | yes |
| PRE188 | male | 62 | A*02, A*24, B*15, B*35 | no | yes |
| PRE189 | female | n.a. | A*11, A*28, B*18, B*35 | no | yes |
| PRE190 | male | 58 | A*24, A*32, B*07, B*14 | no | yes |
| PRE191 | male | 40 | A*02, A*29, B*27, B*44 | no | yes |
| PRE192 | male | 30 | A*24, A*25, B*18, B*40 | yes | yes |
| PRE193 | female | 53 | A*03, A*24, B*39, B*55 | no | yes |
| PRE194 | male | 24 | A*11, A*25, B*18, B*35 | no | yes |
| PRE195 | male | 22 | A*02, B*15, B*27 | no | yes |
| PRE196 | female | 46 | A*03, A*24, B*13, B*15 | no | yes |
| PRE197 | male | 39 | A*01, A*31, B*08, B*27 | no | yes |
| PRE198 | male | 55 | A*01, B*08 | no | yes |
| PRE199 | male | 36 | A*02, B*27, B*15 | no | yes |
| PRE200 | male | 21 | A*02, A*11, B*15, B*51 | no | yes |
| PRE201 | male | 63 | A*01, A*23, B*08, B*35 | no | yes |
| PRE202 | male | 68 | A*03, A*29, B*07, B*44 | no | yes |
| PRE203 | male | 51 | A*01, A*11, B*08, B*35 | no | yes |
| PRE205 | male | 65 | A*24, A*26, B*41, B*55 | no | yes |
| PRE206 | male | 60 | A*03, A*31, B*38, B*51 | no | yes |
| PRE207 | male | 63 | A*02, A*03, B*18, B*35 | no | yes |
| PRE208 | male | 62 | A*02, A*26, B*35, B*44 | no | yes |
| PRE209 | male | 65 | A*03, A*68, B*07, B*38 | no | yes |
| PRE210 | female | 55 | A*01, A*24, B*18, B*52 | no | yes |
| PRE211 | male | 22 | A*02, B*15, B*27 | no | yes |
| PRE212 | male | 28 | A*01, A*02, B*15 | no | yes |
| PRE213 | male | 31 | A*02, A*24, B*35, B*40 | yes | yes |
| PRE214 | male | 50 | A*01, B*08 | no | yes |
| PRE215 | male | 43 | A*01, A*02, B*15, B*57 | no | yes |
| PRE216 | male | 66 | A*11, A*24, B*07, B*57 | no | yes |
| PRE217 | male | 60 | A*03, A*31, B*38, B*51 | no | yes |
| PRE218 | male | 54 | A*01, A*03, B*08, B*15 | no | yes |
| PRE219 | female | 60 | A*02, A*28, B*14, B*15 | no | yes |
| PRE220 | female | 40 | A*01, A*02, B*08, B*49 | no | yes |
| PRE221 | male | 61 | A*02, A*03, B*15, B*56 | no | yes |
| PRE223 | female | 59 | A*23, A*24, B*44, B*49 | no | yes |
| PRE224 | female | 45 | A*01, A*30, B*08, B*13 | no | yes |
| PRE225 | male | 46 | A*24, B*39, B*41 | no | yes |
| PRE227 | male | 57 | A*01, A*33, B*08, B*14 | no | yes |
| PRE228 | male | 28 | A*01, A*02, B*08, B*40 | no | yes |
| PRE229 | male | 50 | A*03, A*68, B*41, B*56 | no | yes |
| PRE230 | male | 52 | A*02, A*25, B*15, B*44 | no | yes |
| PRE231 | female | 49 | A*03, A*31, B*44, B*49 | no | yes |
| PRE232 | male | 61 | A*03, B*07, B*35 | no | yes |

n.a., not available.

Supplementary Table 8: Immunogenicity screening of SARS-CoV-2-derived HLA class I-binding peptides using IFN γ ELISPOT assays in the SARS and PRE groups

| Peptide ID | Sequence | Protein | Protein class | HLA restriction | SARS group 1 [positive/tested (%)] | PRE group A [positive/tested (%)] |
|----------------|--------------|----------|----------------|-----------------|---------------------------------------|--------------------------------------|
| A01_P01 | TTDPSFLGRY | ORF1 | non-structural | A*01 | 10/12 (83%) | 1/18 (6%) |
| A01_P02 | LTDEMIQY | ORF2 spi | structural | A*01 | 6/12 (50%) | 0/18 (0%) |
| A01_P03 | ISEHDYQIGGY | ORF3 | accessory | A*01 | 0/12 (0%) | 0/18 (0%) |
| A01_P04 | AGDSGFAAY | ORF5 mem | structural | A*01 | 0/12 (0%) | 0/18 (0%) |
| A01_P05 | RTFKVSIWNLDY | ORF6 | accessory | A*01 | 1/12 (8%) | 1/18 (6%) |
| A01_P06 | RQEEVQELY | ORF7 | accessory | A*01 | 0/12 (0%) | 0/18 (0%) |
| A01_P07 | VDEAGSKSPIQY | ORF8 | accessory | A*01 | 0/12 (0%) | 0/18 (0%) |
| A01_P08 | SPDDQIGYY | ORF9 nuc | structural | A*01 | 0/12 (0%) | 0/18 (0%) |
| A01_P09 | GTGPEAGLPY | ORF9 nuc | structural | A*01 | 0/12 (0%) | 0/18 (0%) |
| A01_P10 | LIDLQELGKY | ORF2 spi | structural | A*01 | 0/12 (0%) | 0/18 (0%) |
| A02_P01 | FLLPSLATV | ORF1 | non-structural | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P02 | FIAGLIAIV | ORF2 spi | structural | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P03 | ALSKGVHFV | ORF3 | accessory | A*02 | 6/11 (55%) | 0/8 (0%) |
| A02_P04 | FLAFVVFLL | ORF4 env | structural | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P05 | KLLEQWNLV | ORF5 mem | structural | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P06 | SIWNLDYIINL | ORF6 | accessory | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P07 | FIRQEEVQEL | ORF7 | accessory | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P08 | YIDIGNYTV | ORF8 | accessory | A*02 | 0/11 (0%) | 0/8 (0%) |
| A02_P09 | LLLLDRLNQL | ORF9 nuc | structural | A*02 | 5/11 (45%) | 0/8 (0%) |
| A02_P10 | VLQLPQGTTL | ORF9 nuc | structural | A*02 | 0/11 (0%) | 0/8 (0%) |
| A03_P01 | KLFAAETLK | ORF1 | non-structural | A*03 | 2/11 (18%) | 1/10 (10%) |
| A03_P02 | RLFRKSNLK | ORF2 spi | structural | A*03 | 0/11 (0%) | 0/10 (0%) |
| A03_P03 | RIFTIGTVTLK | ORF3 | accessory | A*03 | 0/11 (0%) | 0/10 (0%) |
| A03_P04 | NIVNVSLVK | ORF4 env | structural | A*03 | 0/11 (0%) | 0/10 (0%) |
| A03_P05 | RIAGHHLGR | ORF5 mem | structural | A*03 | 0/11 (0%) | 0/10 (0%) |
| A03_P06 | NLIKNLSK | ORF6 | accessory | A*03 | 0/11 (0%) | 0/10 (0%) |
| A03_P07 | QLRARSVSPK | ORF7 | accessory | A*03 | 3/11 (27%) | 0/10 (0%) |
| A03_P08 | KTFPPTPKK | ORF9 nuc | structural | A*03 | 7/11 (64%) | 0/10 (0%) |
| A03_P09 | KLDDKDPNFK | ORF9 nuc | structural | A*03 | 0/11 (0%) | 0/10 (0%) |
| A03_P10 | VTYVPAQEK | ORF2 spi | structural | A*03 | 0/11 (0%) | 0/10 (0%) |
| A11_P01 | ASMPTTIK | ORF1 | non-structural | A*11 | 3/11 (27%) | 0/9 (0%) |
| A11_P02 | SVLNDILSR | ORF2 spi | structural | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P03 | ASKIITLKK | ORF3 | accessory | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P04 | VTLAILTALR | ORF4 env | structural | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P05 | GTITVEELKK | ORF5 mem | structural | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P06 | NLIKNLSK | ORF6 | accessory | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P07 | GVKHVYQLR | ORF7 | accessory | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P08 | ATEGALNTPK | ORF9 nuc | structural | A*11 | 9/11 (82%) | 0/9 (0%) |
| A11_P09 | ASAFFGMSR | ORF9 nuc | structural | A*11 | 0/11 (0%) | 0/9 (0%) |
| A11_P10 | SSTASALGK | ORF2 spi | structural | A*11 | 0/11 (0%) | 0/9 (0%) |
| A24_P01 | VYIGDPAQL | ORF1 | non-structural | A*24 | 7/10 (70%) | 0/16 (0%) |
| A24_P02 | QYIKWPWYI | ORF2 spi | structural | A*24 | 6/10 (60%) | 1/16 (6%) |

| Peptide ID | Sequence | Protein | Protein class | HLA restriction | SARS group 1 [positive/tested (%)] | PRE group A [positive/tested (%)] |
|----------------|-------------|----------|----------------|-----------------|------------------------------------|-----------------------------------|
| A24_P03 | VYFLQSINF | ORF3 | accessory | A*24 | 7/10 (70%) | 0/16 (0%) |
| A24_P04 | FYVYSRVKLN | ORF4 env | structural | A*24 | 2/10 (20%) | 0/16 (0%) |
| A24_P05 | SYFIASFRLF | ORF5 mem | structural | A*24 | 0/10 (0%) | 0/16 (0%) |
| A24_P06 | PFHPLADNKF | ORF7 | accessory | A*24 | 0/10 (0%) | 0/16 (0%) |
| A24_P07 | EYHDVRVVLDF | ORF8 | accessory | A*24 | 0/10 (0%) | 0/15 (0%) |
| A24_P08 | DYKHWPQIAQF | ORF9 nuc | structural | A*24 | 2/10 (20%) | 0/15 (0%) |
| A24_P09 | GYINVFAPPF | ORF10 | accessory | A*24 | 0/10 (0%) | 0/15 (0%) |
| A24_P10 | YYLGTGPEAGL | ORF9 nuc | structural | A*24 | 0/10 (0%) | 0/15 (0%) |
| B07_P01 | APHGHVMVEL | ORF1 | non-structural | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P02 | TPINLVRDL | ORF2 spi | structural | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P03 | APFLYLYAL | ORF3 | accessory | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P04 | KPSFYVYSRV | ORF4 env | structural | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P05 | RPLLESELVI | ORF5 mem | structural | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P06 | HPLADNKFAL | ORF7 | accessory | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P07 | EPKLGSLVV | ORF8 | accessory | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P08 | FPRGQGVPI | ORF9 nuc | structural | B*07 | 2/12 (17%) | 0/9 (0%) |
| B07_P09 | FPFTIYSLLL | ORF10 | accessory | B*07 | 0/12 (0%) | 0/9 (0%) |
| B07_P10 | NPANNAIVL | ORF9 nuc | structural | B*07 | 2/12 (17%) | 0/9 (0%) |
| B08_P01 | YLKLRSDVL | ORF1 | non-structural | B*08 | 0/12 (0%) | 0/11 (0%) |
| B08_P02 | EPVLKGVKL | ORF2 spi | structural | B*08 | 0/12 (0%) | 0/11 (0%) |
| B08_P03 | IINKLSKSL | ORF6 | accessory | B*08 | 0/12 (0%) | 0/11 (0%) |
| B08_P04 | TLDSKTQSL | ORF2 spi | structural | B*08 | 0/12 (0%) | 0/11 (0%) |
| B08_P05 | TPKYKFVRI | ORF1 | non-structural | B*08 | 0/12 (0%) | 3/11 (27%) |
| B08_P06 | VPMEKCLKTL | ORF1 | non-structural | B*08 | 0/12 (0%) | 0/11 (0%) |
| B08_P07 | FVKHKHAFI | ORF1 | non-structural | B*08 | 1/12 (8%) | 0/11 (0%) |
| B08_P08 | DLKGKYVQI | ORF1 | non-structural | B*08 | 5/12 (42%) | 1/11 (9%) |
| B08_P09 | GAKLKALNL | ORF1 | non-structural | B*08 | 0/12 (0%) | 0/11 (0%) |
| B08_P10 | EAFEKMVSL | ORF1 | non-structural | B*08 | 1/12 (8%) | 1/11 (9%) |
| B15_P01 | YQKVGMMQKY | ORF1 | non-structural | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P02 | VLKGVKLHY | ORF2 spi | structural | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P03 | FLYLYALVY | ORF3 | accessory | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P04 | LVKPSFYVY | ORF4 env | structural | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P05 | WLSYFIASF | ORF5 mem | structural | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P06 | KVSIWNLDY | ORF6 | accessory | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P07 | RQEELVQELY | ORF7 | accessory | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P08 | IQYIDIGNY | ORF8 | accessory | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P09 | LLNKHIDAY | ORF9 nuc | structural | B*15 | 0/12 (0%) | 0/11 (0%) |
| B15_P10 | NVFAPFTIY | ORF10 | accessory | B*15 | 0/12 (0%) | 0/11 (0%) |
| B40_P01 | AEIVDTVSAL | ORF1 | non-structural | B*40 | 0/12 (0%) | 0/11 (0%) |
| B40_P02 | SEPVLKGVKL | ORF2 spi | structural | B*40 | 0/12 (0%) | 0/11 (0%) |
| B40_P03 | SELVIGAVIL | ORF5 mem | structural | B*40 | 6/12 (50%) | 0/11 (0%) |
| B40_P04 | YEGNSPFHPL | ORF7 | accessory | B*40 | 0/12 (0%) | 1/11 (9%) |

| Peptide ID | Sequence | Protein | Protein class | HLA restriction | SARS group 1 [positive/tested (%)] | PRE group A [positive/tested (%)] |
|----------------|------------|----------|----------------|-----------------|---------------------------------------|--------------------------------------|
| B40_P05 | LEYHDVRVVL | ORF8 | accessory | B*40 | 4/12 (33%) | 0/11 (0%) |
| B40_P06 | MEVTPSGTWL | ORF9 nuc | structural | B*40 | 9/12 (75%) | 0/11 (0%) |
| B40_P07 | NESLIDLQEL | ORF2 spi | structural | B*40 | 0/12 (0%) | 0/10 (0%) |
| B40_P08 | TEAFEKMVSL | ORF1 | non-structural | B*40 | 0/12 (0%) | 0/10 (0%) |
| B40_P09 | IEYPIIGDEL | ORF1 | non-structural | B*40 | 7/12 (58%) | 2/10 (20%) |
| B40_P10 | TEVPANSTVL | ORF1 | non-structural | B*40 | 0/12 (0%) | 0/10 (0%) |
| C07_P01 | NYMPYFFTL | ORF1 | non-structural | C*07 | 0/11 (0%) | 0/9 (0%) |
| C07_P02 | VRFPNITNL | ORF2 spi | structural | C*07 | 0/11 (0%) | 0/9 (0%) |
| C07_P03 | YYQLYSTQL | ORF3 | accessory | C*07 | 1/11 (9%) | 0/9 (0%) |
| C07_P04 | NRFLYIIKL | ORF5 mem | structural | C*07 | 6/11 (55%) | 0/9 (0%) |
| C07_P05 | IRQEEVQEL | ORF7 | accessory | C*07 | 0/11 (0%) | 0/9 (0%) |
| C07_P06 | EYHDVRVVL | ORF8 | accessory | C*07 | 0/11 (0%) | 0/9 (0%) |
| C07_P07 | QRNAPRITF | ORF9 nuc | structural | C*07 | 1/11 (9%) | 0/9 (0%) |
| C07_P08 | KKADETQAL | ORF9 nuc | structural | C*07 | 0/11 (0%) | 0/9 (0%) |
| C07_P09 | VYDPLQPEL | ORF2 spi | structural | C*07 | 0/11 (0%) | 0/9 (0%) |
| C07_P10 | IYNDKVAGF | ORF1 | non-structural | C*07 | 0/11 (0%) | 0/9 (0%) |

Immunogenicity screening of 100 SARS-CoV-2-derived HLA class I-binding peptides in IFN γ ELISPOT assays in groups of HLA class I-matched donors recovered from SARS-CoV-2 infection (SARS, total n = 116) and donors never exposed to SARS-CoV-2 (PRE, total n = 104). Dominant T-cell epitopes (immune responses in \geq 50% of SARS donors) are marked in bold. ID, identification number; spi, spike protein; env, envelope protein; mem, membrane protein; nuc, nucleocapsid protein.

Supplementary Table 9: Alignment of HLA class I SARS-CoV-2 cross-reactive T-cell epitopes to common cold coronavirus sequences

| Peptide ID | ORF | Recognition rate SARS group 1 [%] | Recognition rate PRE group A [%] | Virus | Sequence | Similarity [%] | HLA restriction | SYFPEITHI score [%] | NetMHC rank |
|------------|-------------|-----------------------------------|----------------------------------|------------|---------------------|----------------|-----------------|---------------------|-------------|
| A01_P01 | ORF1 | 83 | 6 | SARS-CoV-2 | TTDPSFLGRY | | A*01 | 89.7 | 0.003 |
| | | | | HCoV-OC43 | NFDQKELLAY | 30 | A*01 | 76.9 | 0.93 |
| | | | | HCoV-229E | GFKDAVTFAT | 0 | - | 2.6 | 39.15 |
| | | | | HCoV-NL63 | GFEKAALFAS | 10 | - | 28.2 | 47.12 |
| | | | | HCoV-HKU1 | GFDQQQLLAY | 30 | A*01 | 76.9 | 0.498 |
| A01_P05 | ORF6 | 8 | 6 | SARS-CoV-2 | RTFKVSIWNLDY | | A*01 | | |
| | | | | HCoV-OC43 | - | | | | |
| | | | | HCoV-229E | - | | | | |
| | | | | HCoV-NL63 | - | | | | |
| | | | | HCoV-HKU1 | - | | | | |
| A03_P01 | ORF1 | 18 | 10 | SARS-CoV-2 | KLFAAETLK | | A*03 | 83.9 | 0.009 |
| | | | | HCoV-OC43 | KLFAAETQK | 89 | A*03 | 80.7 | 0.008 |
| | | | | HCoV-229E | RLFAAETVK | 78 | A*03 | 80.7 | 0.019 |
| | | | | HCoV-NL63 | RLFAAETIK | 78 | A*03 | 80.7 | 0.020 |
| | | | | HCoV-HKU1 | KLFAAETQK | 89 | A*03 | 80.7 | 0.008 |
| A24_P02 | ORF2 spi | 60 | 6 | SARS-CoV-2 | QYIKWPWYI | | A*24 | 77.4 | 0.027 |
| | | | | HCoV-OC43 | YYVWPWYV | 67 | A*24 | 38.7 | 0.151 |
| | | | | HCoV-229E | TYIKWPWV | 67 | A*24 | 48.4 | 0.262 |
| | | | | HCoV-NL63 | NYIKWPWV | 67 | A*24 | 45.2 | 0.362 |
| | | | | HCoV-HKU1 | MYVWPWYV | 67 | A*24 | 38.7 | 0.243 |
| B08_P05 | ORF1 | 0 | 27 | SARS-CoV-2 | TPKYKFVRI | | B*08 | 79.1 | 0.025 |
| | | | | HCoV-OC43 | TPKYTFGVV | 56 | B*08 | 39.5 | 1.096 |
| | | | | HCoV-229E | TPRHSEFTL | 33 | B*08 | 51.2 | 0.078 |
| | | | | HCoV-NL63 | TPKHVFCTL | 44 | B*08 | 62.8 | 0.048 |
| | | | | HCoV-HKU1 | TPKYTFGNV | 56 | B*08 | 39.5 | 1.611 |
| B08_P08 | ORF1 | 42 | 9 | SARS-CoV-2 | DLKGKVFQI | | B*08 | 76.7 | 0.036 |
| | | | | HCoV-OC43 | KLRGKVFQV | 56 | B*08 | 53.5 | 0.172 |
| | | | | HCoV-229E | QYKGVVQV | 56 | - | 48.8 | 2.537 |
| | | | | HCoV-NL63 | KFKGKCVQV | 56 | - | 48.8 | 3.017 |
| | | | | HCoV-HKU1 | KLRGKVFQV | 56 | B*08 | 53.5 | 0.172 |
| B40_P04 | ORF7 | 0 | 9 | SARS-CoV-2 | YEGNSPFHPL | | B*40 | | |
| | | | | HCoV-OC43 | - | | | | |
| | | | | HCoV-229E | - | | | | |
| | | | | HCoV-NL63 | - | | | | |
| | | | | HCoV-HKU1 | - | | | | |
| B40_P09 | ORF1 | 58 | 20 | SARS-CoV-2 | IEYPIIGDEL | | B*40 | 71.9 | 0.062 |
| | | | | HCoV-OC43 | VEYPIISNEL | 70 | B*40 | 68.8 | 0.057 |
| | | | | HCoV-229E | ITYPMIANEN | 50 | - | 9.4 | 80.00 |
| | | | | HCoV-NL63 | VTYPIIANEK | 40 | - | 9.4 | 37.33 |
| | | | | HCoV-HKU1 | LEYPIISNEV | 60 | B*40 | 37.5 | 0.582 |

Amino acids identical to the SARS-CoV-2-derived sequence are marked in bold. Depicted SYFPEITHI scores and NetMHC ranks are calculated for the respective HLA allotype of the corresponding SARS-CoV-2-derived peptide. ID, identification number; spi, spike protein.

Supplementary Table 10: Alignment of HLA-DR SARS-CoV-2 cross-reactive T-cell epitopes to common cold coronavirus sequences

| Peptide ID | ORF | Recognition rate SARS group [%] | Recognition rate PRE group [%] | Virus | Sequence | Similarity [%] |
|------------|-------------|---------------------------------|--------------------------------|------------|--------------------------------------|----------------|
| DR_P01 | ORF9 nuc | 91 | 44 | SARS-CoV-2 | KDGI I W V A T E G A L N T | |
| | | | | HCoV-OC43 | I D G V V W V A S N Q A D V N | 40 |
| | | | | HCoV-229E | V E G V V W V A V D G A K T E | 40 |
| | | | | HCoV-NL63 | S D G V V W V A K E G A K T V | 53 |
| | | | | HCoV-HKU1 | L E G V F W V A N H Q A D T S | 33 |
| DR_P02 | ORF9 nuc | 77 | 11 | SARS-CoV-2 | GTW L T Y T G A I K L D D K | |
| | | | | HCoV-OC43 | V Y E L R Y N G A I R F D S T | 40 |
| | | | | HCoV-229E | T V V L T F T T R V T V P K D | 20 |
| | | | | HCoV-NL63 | N V Q I T Y T Y K M L V A K D | 20 |
| | | | | HCoV-HKU1 | V F E L H Y S G S I R F D S T | 33 |
| DR_P03 | ORF9 nuc | 73 | 6 | SARS-CoV-2 | RWY F Y L G T G P E A G L | |
| | | | | HCoV-OC43 | RWY F Y L G T G P H A K D | 80 |
| | | | | HCoV-229E | K L H F Y L G T G P H K D A | 53 |
| | | | | HCoV-NL63 | K V H F Y L G T G P H K D L | 60 |
| | | | | HCoV-HKU1 | RWY F Y L G T G P Y A N A | 80 |
| DR_P04 | ORF9 nuc | 59 | 6 | SARS-CoV-2 | ASW F T A L T Q H G K E D L | |
| | | | | HCoV-OC43 | Y S W F S G I T Q F Q K G K E | 40 |
| | | | | HCoV-229E | Y S L Y S P L L V D S E Q P W | 13 |
| | | | | HCoV-NL63 | P S F Y M P L L V S S D K A P | 13 |
| | | | | HCoV-HKU1 | Y S W F S G I T Q F Q K G R D | 40 |
| DR_P05 | ORF9 nuc | 52 | 6 | SARS-CoV-2 | AS A F F G M S R I G M E V T | |
| | | | | HCoV-OC43 | A G A F F F G S R L E L A K V | 40 |
| | | | | HCoV-229E | T A A M L F D S H I V S K E S | 20 |
| | | | | HCoV-NL63 | Q A A L F F D S E V S T D E V | 20 |
| | | | | HCoV-HKU1 | P G A F F F G S K L D L V K R | 27 |
| DR_P07 | ORF9 nuc | 64 | 6 | SARS-CoV-2 | L L L L D R L N Q L E S K M S | |
| | | | | HCoV-OC43 | S L V L A K L G K D A T K P Q | 27 |
| | | | | HCoV-229E | S L G F D K P Q E K D K K S A | 20 |
| | | | | HCoV-NL63 | N L G F D N Q S K S P S S S G | 20 |
| | | | | HCoV-HKU1 | N L V L A K L G K D S K P Q Q | 20 |
| DR_P11 | ORF1 | 27 | 5 | SARS-CoV-2 | L D D F V E I I K S Q D L S V | |
| | | | | HCoV-OC43 | L D D F V T L V K S L N L N C | 53 |
| | | | | HCoV-229E | L D D F V S V L K S L D L T V | 67 |
| | | | | HCoV-NL63 | L D D F V T I L K S L D L G V | 73 |
| | | | | HCoV-HKU1 | L D D F V S I V K S L N L S C | 67 |
| DR_P15 | ORF4 env | 55 | 11 | SARS-CoV-2 | F Y V Y S R V K N L N S S R V | |
| | | | | HCoV-OC43 | I Y V F N R G R Q F Y E F Y N | 20 |
| | | | | HCoV-229E | K N V Y H I Y Q S Y M H I D P | 13 |
| | | | | HCoV-NL63 | Y K I F L A Y Q D Y M Q I A P | 0 |
| | | | | HCoV-HKU1 | A Y V Y K R G M Q L Y K S Y S | 40 |
| DR_P17 | ORF6 | 41 | 11 | SARS-CoV-2 | I W N L D Y I I N L I I K N L | |
| | | | | HCoV-OC43 | - | |
| | | | | HCoV-229E | - | |
| | | | | HCoV-NL63 | - | |
| | | | | HCoV-HKU1 | - | |
| DR_P18 | ORF7 | 36 | 1 | SARS-CoV-2 | Q E E V Q E L Y S P I F L I V | |
| | | | | HCoV-OC43 | - | |
| | | | | HCoV-229E | - | |
| | | | | HCoV-NL63 | - | |
| | | | | HCoV-HKU1 | - | |
| DR_P19 | ORF8 | 68 | 25 | SARS-CoV-2 | S K W Y I R V G A R K S A P L | |
| | | | | HCoV-OC43 | - | |
| | | | | HCoV-229E | - | |
| | | | | HCoV-NL63 | - | |
| | | | | HCoV-HKU1 | - | |

Amino acids identical to the SARS-CoV-2-derived sequence are marked in bold. ID, identification number; nuc, nucleocapsid protein; env, envelope protein.

Supplementary Table 11: Negative control peptides

| Sequence | HLA restriction | Source protein | Organism |
|-----------------|-----------------|----------------|------------------------------|
| GSEELRSLY | A*01 | POL_HV1BR | Human immunodeficiency virus |
| YLLPAIVHI | A*02 | DDX5_HUMAN | Homo sapiens |
| RLRPGGKKK | A*03 | GAG_HV1BR | Human immunodeficiency virus |
| ASEDYVAPPK | A*11 | MKX_HUMAN | Homo sapiens |
| AYVHMTVTHF | A*24 | BI1_HUMAN | Homo sapiens |
| TPGPGVRYPL | B*07 | NEF_HV1BR | Human immunodeficiency virus |
| DIAARNVL | B*08 | FAK1_HUMAN | Homo sapiens |
| RLRPGGKKKY | B*15 | GAG_HV1BR | Human immunodeficiency virus |
| GELDRWEKI | B*40 | GAG_HV1BR | Human immunodeficiency virus |
| KYFDEHYEY | C*07 | CKS2_HUMAN | Homo sapiens |
| ETVITVDTKAAGKGK | DR | FLNA_HUMAN | Homo sapiens |

Negative control peptides with their respective HLA restrictions used for IFN γ ELISPOT assays and intracellular cytokine stainings. HV1BR, human immunodeficiency virus type 1 group M subtype B; POL, Gag-Pol polyprotein; DDX5, Probable ATP-dependent RNA helicase DDX5; GAG, Gag polyprotein; MKX, Homeobox protein Mohawk; BI1, Bax inhibitor 1; NEF, Protein Nef; FAK1, Focal adhesion kinase 1; CKS2, Cyclin-dependent kinases regulatory subunit 2; FLNA, Filamin-A.