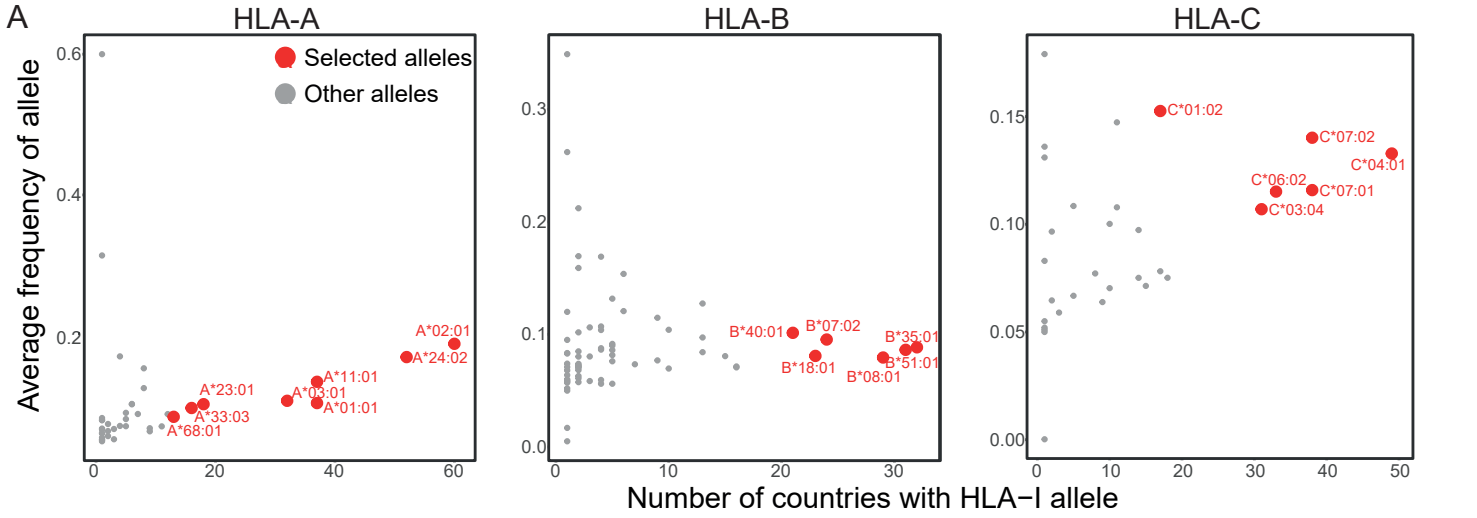
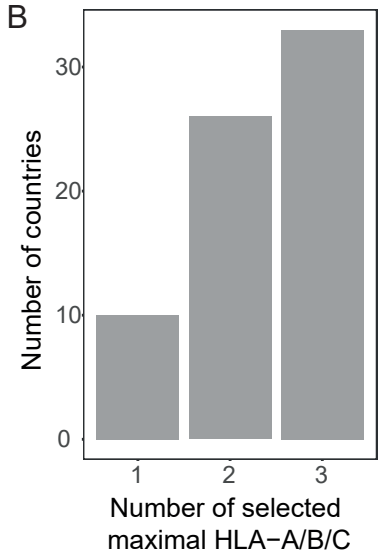
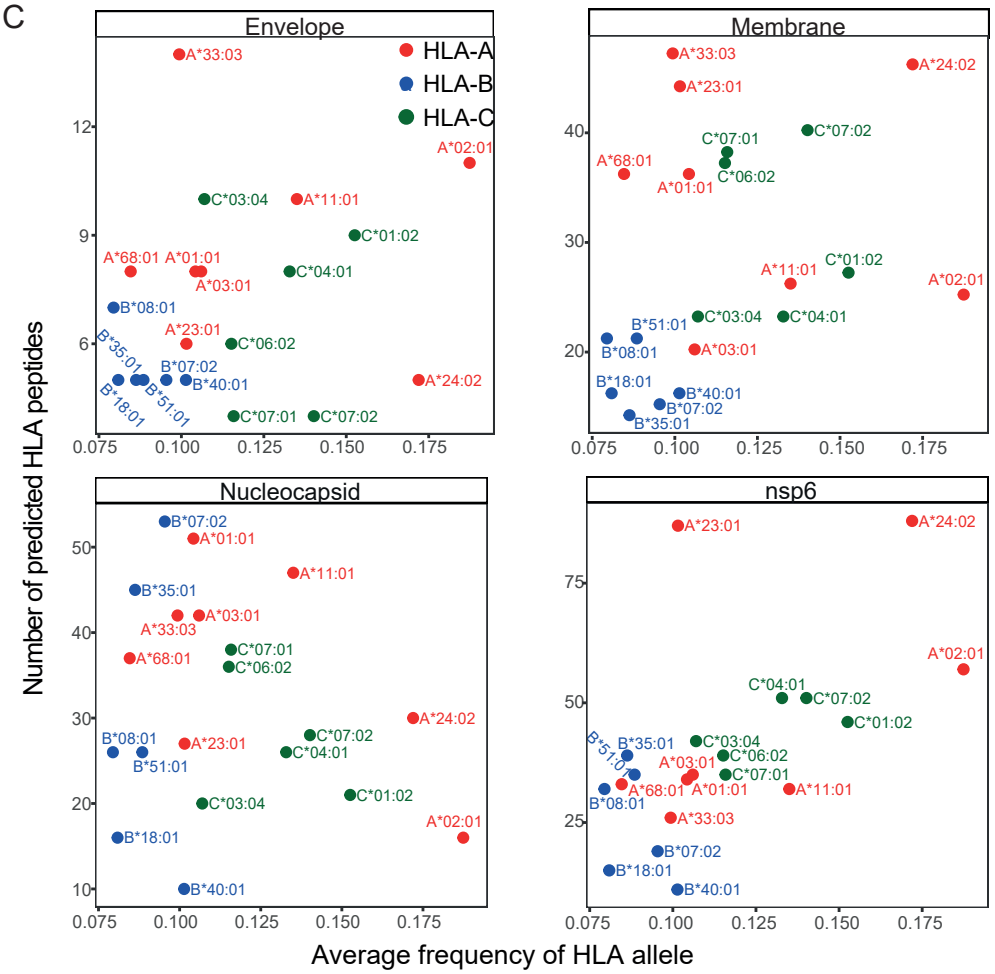
Supplementary Figure 1







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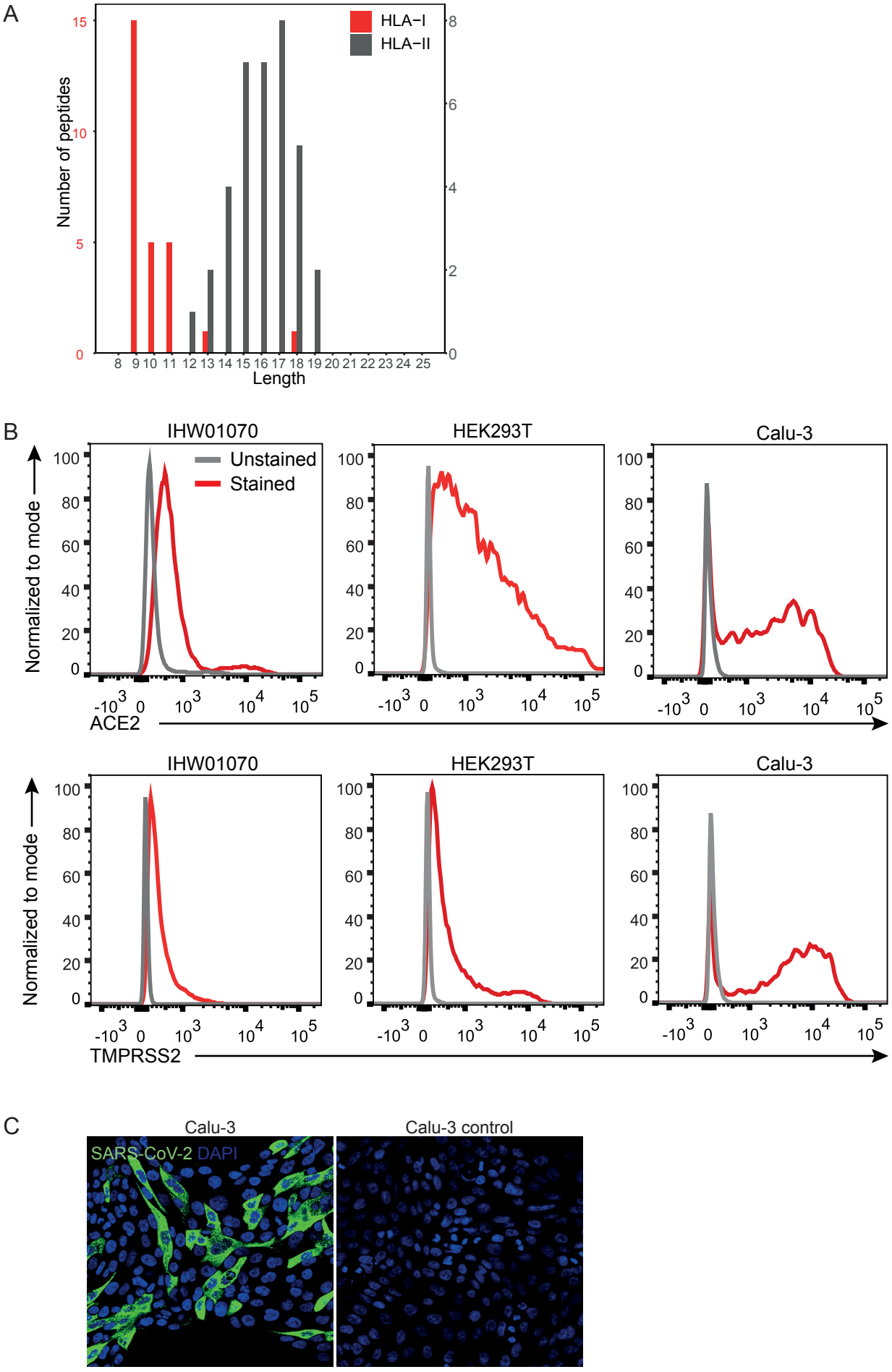
Cells	Endogenous HLA-I alleles	Overexpressed HLA-I allele	Endogenous HLA-II alleles	Gene
IHW01070	A*01:01, A*02:01, B*08:01, B*40:01, C*07:01, C*04:04	-	DPA1*01:03, DPB1*04:02, DPB1*04:01 DQA1*02:01, DQA1*03:01, DQB1*03:02, DQB1*03:03 DRB1*07:01, DRB1*04:04	E, M, N, nsp6
IHW01161	A*01:01, A*68:01, B*08:01, B*13:02, C*07:01, C*03:03	-	DPA1*01:03, DPA1*02:01, DPB1*04:01, DPB1*14:01 DQA1*01:02, DQA1*02:01, DQB1*02:01, DQB1*06:02 DRB1*07:01, DRB1*15:01	E, N
721.221	C*01:02	A*01:01	DRB1*01:02	E, M, N
		A*02:01		M, nsp6
		A*24:02		M, nsp6
		A*03:01		E, M, N
		A*11:01		E, M, N
		B*07:02		N
Calu-6	A*01:01, B*08:01, B*35:08, C*07:01	-	-	N
HEK293T	A*02:01, A*03:01, B*07:02, C*07:02	-	-	-
Calu-3	A*24:02, A*68:01, B*07:02, B*51:01, C*15:02	-	-	-

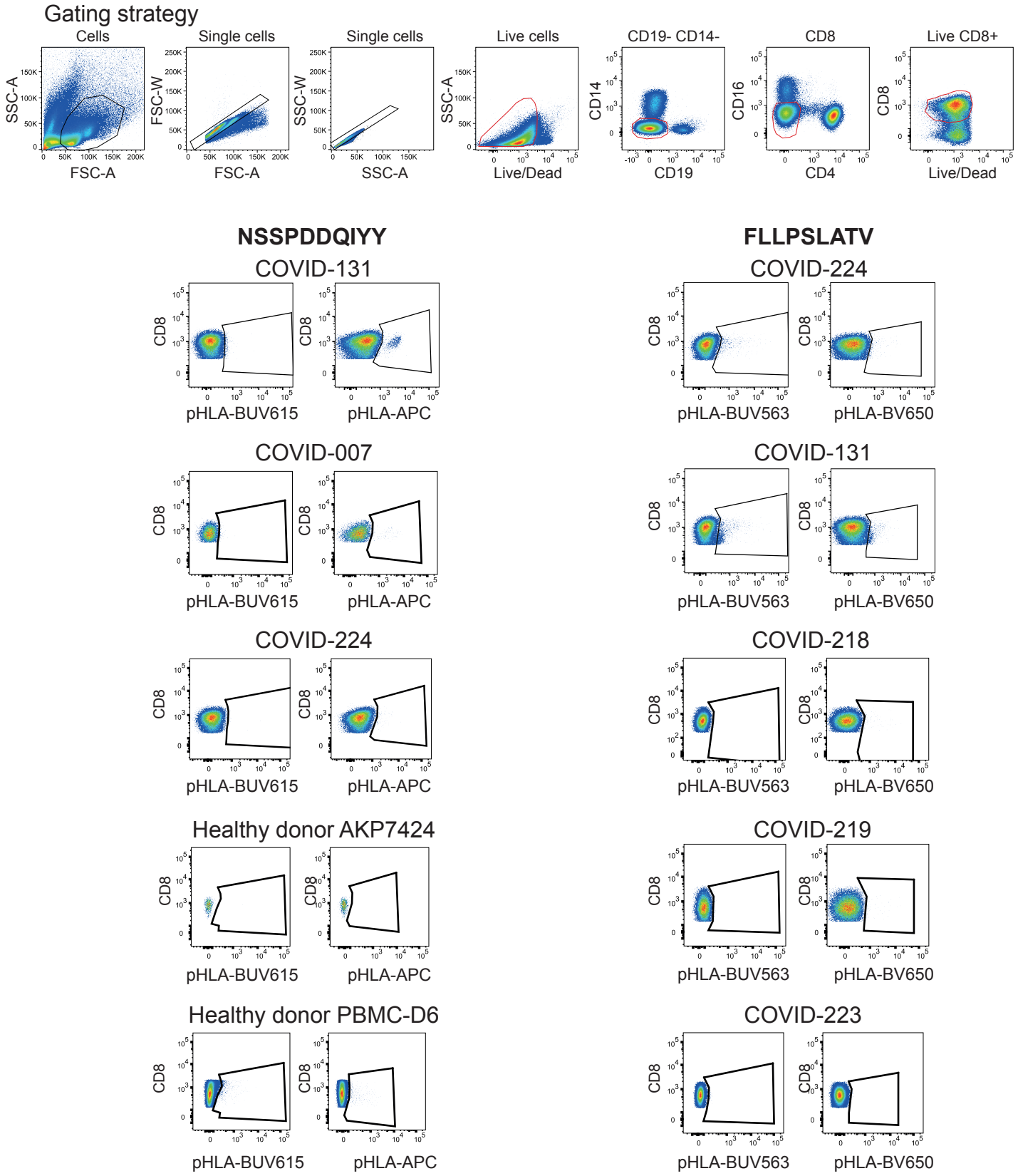
Supplementary Figure 1. Selection of the most frequent HLA-I alleles in the world population. (A) The frequency of HLA-I alleles (A/B/C) in the countries containing the relevant allele. The most frequent alleles identified in the largest amount of countries are marked in red; these were used for further analysis. (B) Number of selected HLA-A/B/C alleles that were the top frequent in each country is summed in the bar plot. (C) The percentages of SARS-CoV-2 peptides from the envelope, membrane, nucleocapsid and nsp6 proteins that match the most frequent HLA-A/B/C allele are indicated. The allele with the best %rank binding prediction by NetMHCpan was assigned to each peptide. (D) The table describe the cell lines used in the study and their endogenous HLA expression and overexpressed HLA alleles. HLA marked in red are the most frequent alleles in the world population. The SARS-CoV-2 genes overexpressed in the cells are indicated.

Supplementary Figure 2



Supplementary Figure 2. The length distribution of SARS-CoV-2-derived peptides is similar to the expected length of HLA-I and HLA-II peptides. ACE2 and TMPRSS2 expression in IHW01070, HEK293T and Calu-3 cells. (A) Presented is the length of SARS-CoV-2 HLA-I (red) and HLA-II (gray) peptides identified in the B cell lines. (B) Flow-cytometry analysis of IHW01070, HEK293T and Calu-3 cell lines stained with anti-ACE2 and anti-TMPRSS2 (red). Unstained cells were used as control (gray). (C) (left) A representative image of Calu-3 cell line infected with SARSCoV- 2 and stained using SARS-CoV-2 specific antibodies (green), cell nuclei were stained with DAPI (blue). (right) A representative control image of Calu-3 cells not infected with SARS-CoV-2, stained SARS CoV-2 specific antibodies and DAPI. Images are presented in 20x magnification scale 100 μm.

Supplementary Figure 3



Supplementary Figure 3. Gating strategy for SARS-CoV-2 pHLA multimer staining. Flow cytometry gating strategy plots of detected SARS-CoV-2-specific CD8+ T cell responses.