

Supplementary Data 1:

Physiochemical properties of SARS-CoV-2 T-cell epitopes in comparison to common human coronaviruses

Nelde *et al.*

Information

- Physiochemical properties were calculated by the freely available software PepCalc (<https://pepcalc.com/>)
- y axis: Hopp-Woods hydrophilicity scale
 - top is hydrophylic
 - bottom is hydrophobic
- color code:
 - acidic
 - aromatic
 - basic
 - aliphatic
 - polar
 - cysteine

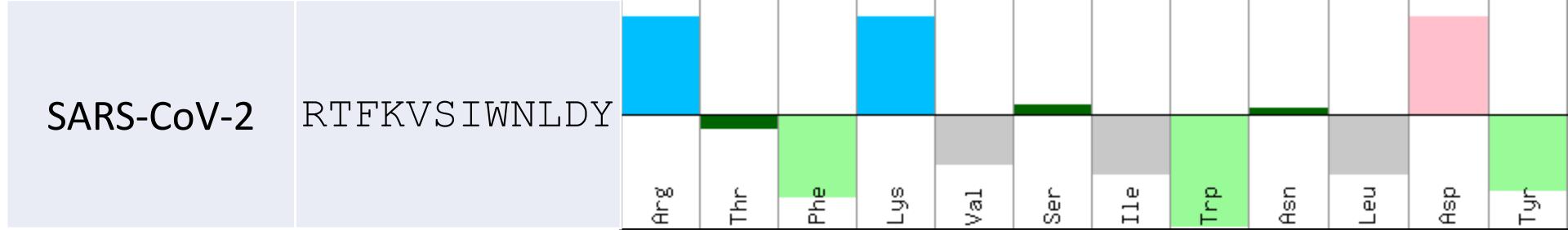
Cross-reactive T-cell epitopes

HLA class I

A01_P01

	SARS-CoV-2	TTDPSFLGRY	Thr	Thr	Asp	Pro	Ser	Phe	Leu	Gly	Arg	Tyr
	HCoV-OC43	NFDQKELLAY	Asn	Phe	Asp	Gln	Lys	Glu	Leu	Leu	Ala	Tyr
	HCoV-229E	GFKDAVTFAT	Gly	Phe	Lys	Asp	Ala	Val	Thr	Phe	Ala	Thr
	HCoV-NL63	GFEKAALFAS	Gly	Phe	Glu	Lys	Ala	Ala	Leu	Phe	Ala	Ser
	HCoV-HKU1	GFDQQQLLAY	Gly	Phe	Asp	Gln	Gln	Gln	Leu	Leu	Ala	Tyr

A01_P05



No alignments to common coronaviruses possible.

A03_P01

	SARS-CoV-2	KLFAAETLK	Lys	Leu	Phe	Ala	Ala	Glu	Thr	Leu	Lys
	HCoV-OC43	KLFAAETQK	Lys	Leu	Phe	Ala	Ala	Glu	Thr	Gln	Lys
	HCoV-229E	RLFAAETVK	Arg	Leu	Phe	Ala	Ala	Glu	Thr	Val	Lys
	HCoV-NL63	RLFAAETIK	Arg	Leu	Phe	Ala	Ala	Glu	Thr	Ile	Lys
	HCoV-HKU1	KLFAAETQK	Lys	Leu	Phe	Ala	Ala	Glu	Thr	Gln	Lys

A24_P02

	SARS-CoV-2	QYIKWPWYI																		
	HCoV-OC43	YYVKWPWYV		Tyr	Tyr	Val		Lys		Trp		Pro		Trp	Tyr					Val
	HCoV-229E	TYIKWPWWV		Thr	Tyr	Ile		Lys		Trp		Pro		Trp	Trp					Val
	HCoV-NL63	NYIKWPWWV		Asn	Tyr	Ile		Lys		Trp		Pro		Trp	Trp					Val
	HCoV-HKU1	MYVKWPWYV		Met	Tyr	Val		Lys		Trp		Pro		Trp	Tyr					Val

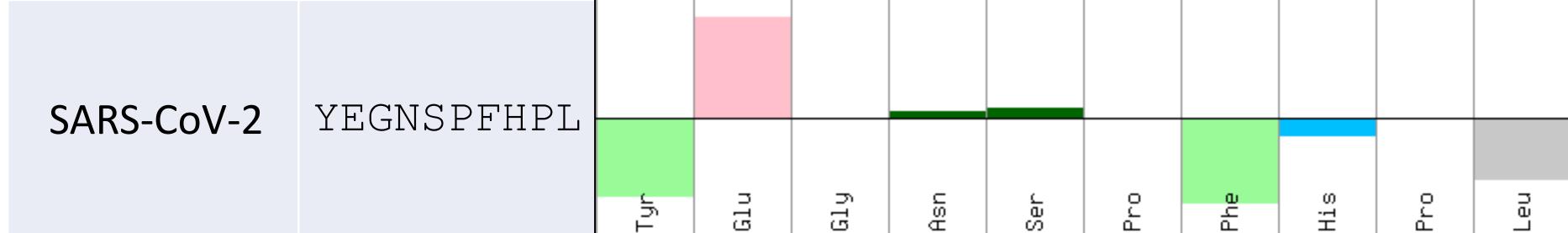
B08_P05

	SARS-CoV-2	TPKYKFVRI	Thr	Pro	Lys	Tyr	Lys	Phe	Val	Arg	Ile
	HCoV-OC43	TPKYTFGVV	Thr	Pro	Lys	Tyr	Thr	Phe	Gly	Val	Val
	HCoV-229E	TPRHSFRTL	Thr	Pro	Arg	His	Ser	Phe	Arg	Thr	Leu
	HCoV-NL63	TPKHVFKTL	Thr	Pro	Lys	His	Val	Phe	Lys	Thr	Leu
	HCoV-HKU1	TPKYTFGNV	Thr	Pro	Lys	Tyr	Thr	Phe	Gly	Asn	Val

B08_P08

	SARS-CoV-2	DLKGKYVQI	Lys	Asp	Leu	Lys	Gly	Lys	Tyr	Val	Gln	Ile
	HCoV-OC43	KLRGKFVQV	Lys	Lys	Leu	Arg	Gly	Lys	Phe	Val	Gln	Val
	HCoV-229E	QYKGKWVQV	Gln	Tyr	Lys	Gly	Lys	Trp	Val	Gln	Val	Val
	HCoV-NL63	KFKGKCVQV	Lys	Phe	Lys	Gly	Lys	Cys	Val	Gln	Val	Val
	HCoV-HKU1	KLRGKFVQV	Lys	Leu	Arg	Gly	Lys	Phe	Val	Gln	Val	Val

B40_P04



No alignments to common coronaviruses possible.

B40_P09

SARS-CoV-2	IEYPIIGDEL		Ile	Glu	Tyr	Pro	Ile	Ile	Gly	Asp	Glu	Leu
HCoV-OC43	VEYPIISNEL		Val	Glu	Tyr	Pro	Ile	Ile	Ser	Asn	Glu	Leu
HCoV-229E	ITYPMIANEN		Ile	Thr	Tyr	Pro	Met	Ile	Ala	Asn	Glu	Asn
HCoV-NL63	VTYPIFIANEK		Val	Thr	Tyr	Pro	Phe	Ile	Ala	Asn	Glu	Lys
HCoV-HKU1	LEYPIISNEV		Leu	Glu	Tyr	Pro	Ile	Ile	Ser	Asn	Glu	Val

Cross-reactive T-cell epitopes

HLA-DR

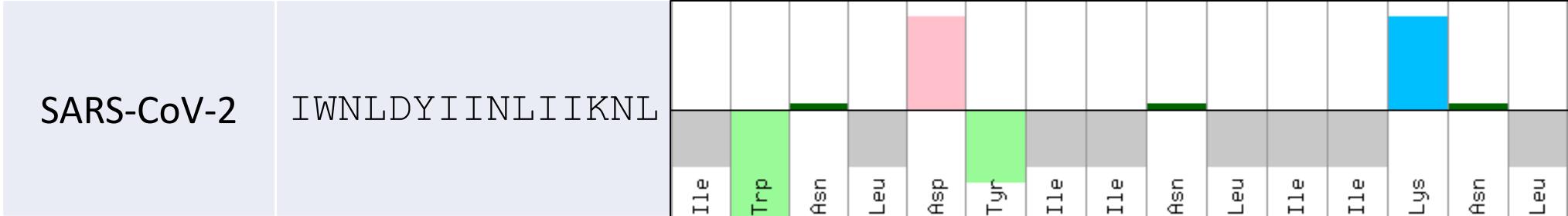
DR_P11

	SARS-CoV-2	LDDFVEIIKSQDLSV	Leu	Asp	Asp	Phe	Val	Glu	Ile	Ile	Lys	Ser	Gln	Asp	Leu	Ser	Val
	HCoV-OC43	LDDFVTLVKSLNLNC	Leu	Asp	Asp	Phe	Val	Thr	Leu	Val	Lys	Ser	Leu	Asn	Leu	Asn	Cys
	HCoV-229E	LDDFVSVLKSLDLTV	Leu	Asp	Asp	Phe	Ser	Val	Leu	Leu	Lys	Ser	Leu	Asn	Leu	Asn	Val
	HCoV-NL63	LDDFVTILKSLDLGV	Leu	Asp	Asp	Phe	Val	Thr	Ile	Leu	Lys	Ser	Leu	Asp	Leu	Gly	Val
	HCoV-HKU1	LDDFVSIVKSLNLSC	Leu	Asp	Asp	Phe	Ser	Ile	Val	Leu	Lys	Ser	Leu	Asn	Leu	Ser	Cys

DR_P15

	SARS-CoV-2	FYVYSRVKNLNSSRV	Phe	Tyr	Val	Tyr	Ser	Arg	Val	Lys	Asn	Leu	Asn	Ser	Ser	Arg	Val
	HCoV-OC43	IYVFNRGRQFYEFYN	Ile	Tyr	Val	Phe	Asn	Arg	Gly	Arg	Gln	Phe	Tyr	Glu	Phe	Tyr	Asn
	HCoV-229E	KNVYHIYQSYMHIDP	Lys	Asn	Val	Tyr	His	Ile	Tyr	Ser	Tyr	Asp	Met	His	Pro	Asp	Asn
	HCoV-NL63	YKIFLAYQDYMQIAP	Tyr	Lys	Ile	Phe	Leu	Ala	Tyr	Gln	Asp	Tyr	Met	Ile	Asp	Ala	Pro
	HCoV-HKU1	AYVYKRGMQLYKSYS	Ala	Tyr	Val	Tyr	Lys	Arg	Gly	Met	Gln	Tyr	Tyr	Gln	Tyr	Tyr	Ser

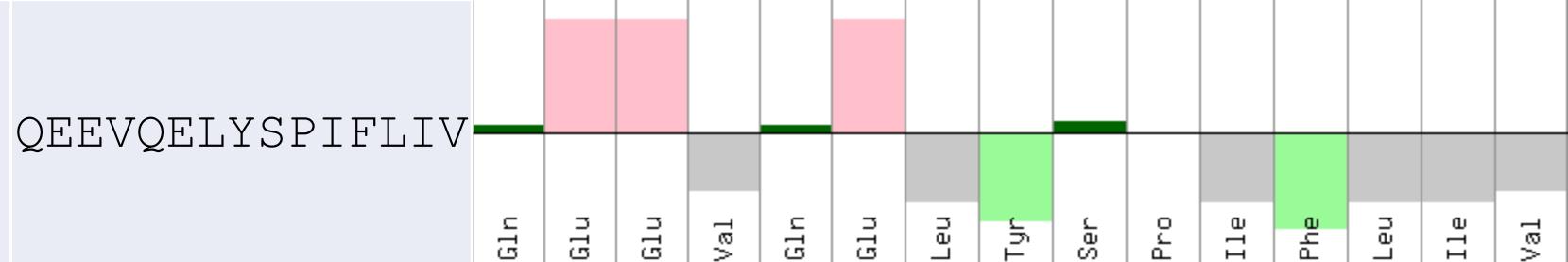
DR_P17



No alignments to common coronaviruses possible.

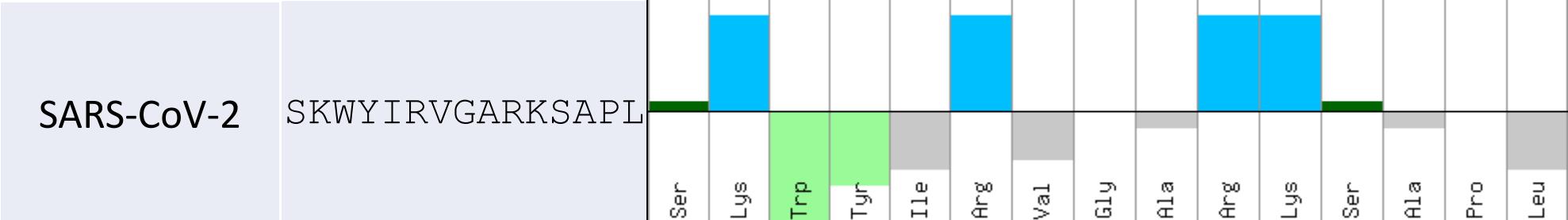
DR_P18

SARS-CoV-2



No alignments to common coronaviruses possible.

DR_P19



No alignments to common coronaviruses possible.

DR_P01

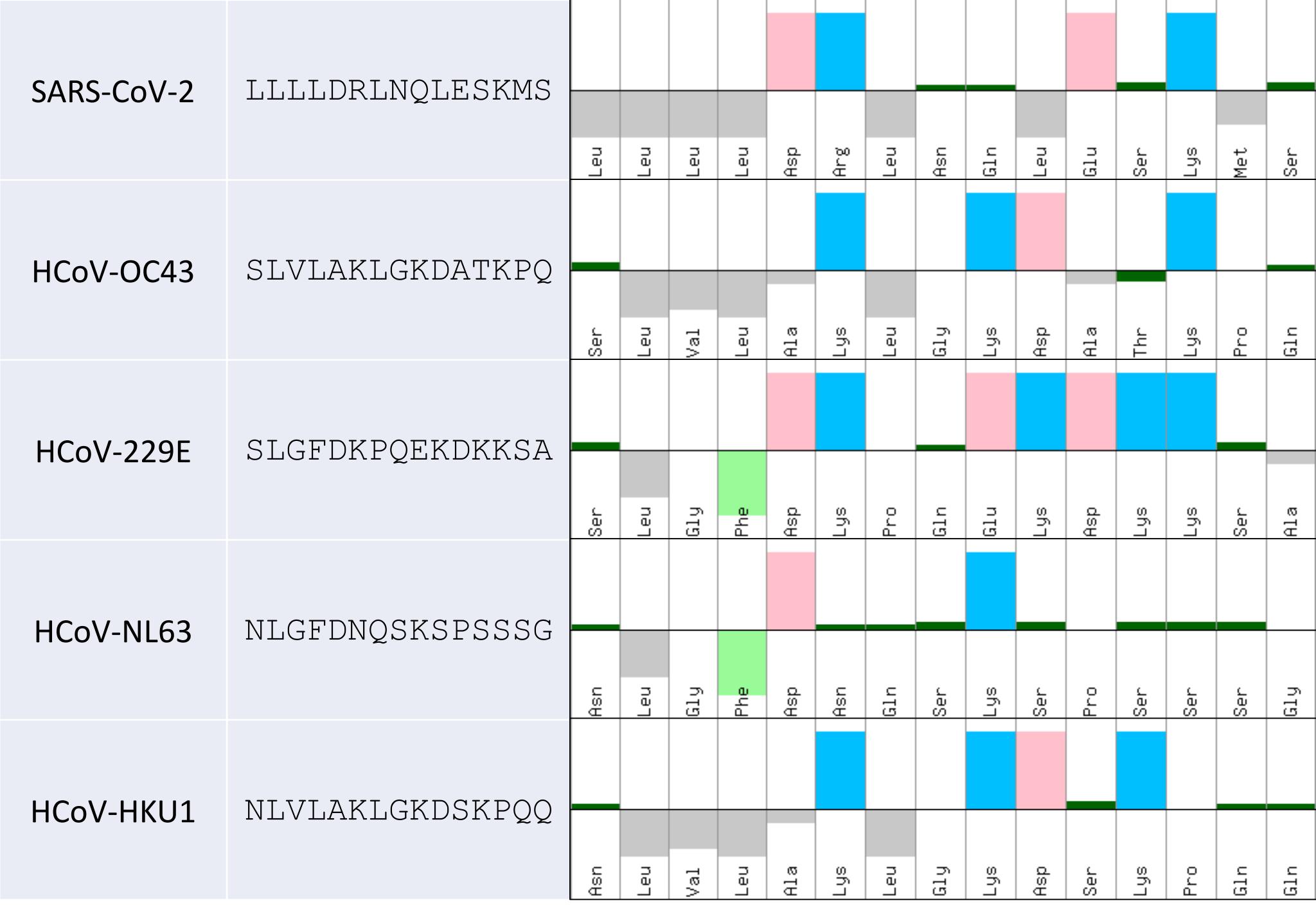
DR_P02

	SARS-CoV-2	GTWLTYTGAIKLDDK	Gly																	
	HCoV-OC43	VYELRYNGAIRFDST	Val	Tyr	Thr	Trp	Leu	Leu	Thr	Tyr	Thr	Thr	Gly	Ala	Ile	Lys	Leu	Asp	Asp	Lys
	HCoV-229E	TVVLTFTRVTVPKD	Thr	Val	Val	Val	Leu	Leu	Arg	Tyr	Tyr	Asn	Gly	Ala	Ile	Arg	Phe	Asp	Ser	Asp
	HCoV-NL63	NVQITYTYKMLVAKD	Asn	Val	Gln	Glu	Ile	Thr	Tyr	Thr	Thr	Arg	Val	Met	Leu	Thr	Val	Pro	Asp	Asp
	HCoV-HKU1	VFELHYSGSIRFDST	Val	Phe	Val	Glu	Leu	His	Tyr	Thr	Tyr	Lys	Ile	Arg	Phe	Ala	Asp	Ser	Asp	Asp

DR_P03

	SARS-CoV-2	RWYFYYLGTGPEAGL	Arg	Trp	Tyr	Phe	Tyr	Tyr	Tyr	Leu	Gly	Thr	Gly	Pro	Glu	Ala	Gly	Leu
	HCoV-OC43	RWYFYYLGTGPHAKD	Arg	Trp	Tyr	Phe	Tyr	Tyr	Tyr	Leu	Gly	Thr	Gly	Pro	Glu	Ala	Gly	Leu
	HCoV-229E	KLHFYYLGTGPHKDA	Lys	Leu	His	Phe	Tyr	Tyr	Tyr	Leu	Gly	Thr	Gly	Pro	His	Ala	Lys	Asp
	HCoV-NL63	KVHFYYLGTGPHKDL	Lys	Val	His	Phe	Tyr	Tyr	Tyr	Leu	Gly	Thr	Gly	Pro	His	Lys	Asp	Ala
	HCoV-HKU1	RWYFYYLGTGPYANA	Arg	Trp	Tyr	Phe	Tyr	Tyr	Tyr	Leu	Gly	Thr	Gly	Pro	His	Lys	Asp	Ala

DR_P07



DR_P04

	SARS-CoV-2	ASWFTALTQHGKEDL	Tyr	Ser	Ala	Leu	Thr	Ala	Leu	Thr	Gln	His	Gly	Lys	Glu	Asp	Leu
	HCoV-OC43	YSWFSGITQFQKGKE	Tyr	Ser	Trp	Phe	Ser	Gly	Ile	Thr	Gln	His	Gly	Lys	Glu	Asp	Glu
	HCoV-229E	YSLYSPLLVVDSEQPW	Tyr	Ser	Leu	Tyr	Ser	Pro	Leu	Leu	Gln	Gln	Gly	Lys	Gly	Asp	Trp
	HCoV-NL63	PSFYMPLLVSSDKAP	Pro	Ser	Phe	Tyr	Met	Pro	Leu	Leu	Val	Asp	Asp	Glu	Gln	Pro	Pro
	HCoV-HKU1	YSWFSGITQFQKGKD	Tyr	Ser	Trp	Phe	Ser	Gly	Ile	Leu	Val	Ser	Ser	Asp	Lys	Arg	Asp

DR_P05

	SARS-CoV-2	ASAAFFGMSRIGMEVT	Pro Gly Ala Phe Phe Phe Gly Ser Ala Ala Ala Phe Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val	Thr Ala Ala Leu Leu Leu Asp Ser Gly Gly Ser Arg Ile Leu Glu Leu Ser Lys Val Asp Leu Val Glu Lys Arg	Ala Gly Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val
	HCoV-OC43	AGAFFFGSRLELAKV	Pro Gly Ala Phe Phe Phe Gly Ser Ala Ala Ala Phe Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val	Thr Ala Ala Leu Leu Leu Asp Ser Gly Gly Ser Arg Ile Leu Glu Leu Ser Lys Glu Lys Val	Ala Gly Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val
	HCoV-229E	TAAMLFDSHIVSKES	Pro Gly Ala Phe Phe Phe Gly Ser Ala Ala Ala Phe Phe Phe Gly Asp Ser His Ile Leu Glu Val Ser Thr	Thr Ala Ala Leu Leu Leu Asp Ser Gly Gly Ser Arg Ile Leu Glu Leu Ser Lys Val Asp Leu Val Glu Lys Ser	Ala Gly Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val
	HCoV-NL63	QAALFFDSEVSTDEV	Pro Gly Ala Phe Phe Phe Gly Ser Ala Ala Ala Phe Phe Phe Gly Asp Ser His Ile Leu Glu Val Ser Thr	Thr Ala Ala Leu Leu Leu Asp Ser Gly Gly Ser Arg Ile Leu Glu Leu Ser Lys Val Asp Leu Val Glu Lys Ser	Ala Gly Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val
	HCoV-HKU1	PGAFFFGSKLDLVKR	Pro Gly Ala Phe Phe Phe Gly Ser Ala Ala Ala Phe Phe Phe Gly Asp Ser His Ile Leu Glu Val Ser Thr	Thr Ala Ala Leu Leu Leu Asp Ser Gly Gly Ser Arg Ile Leu Glu Leu Ser Lys Val Asp Leu Val Glu Lys Ser	Ala Gly Ser Ala Phe Phe Gly Met Ser Arg Ile Gly Met Glu Lys Val