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RESEARCH ARTICLE

Inter-Pathogen Peptide Sharing and the Original Antigenic Sin. Solving a Paradox

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Table S1. Distribution and occurrences of HPV16 pentapeptides through the analysed pathogens and in the human host. Column 1: pentapeptide aa sequences; Column 2: occurrences. Details under Methods and in text.

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
1	2	1	2	1	2	1	2	1	2	1	2	1	2
LWLPS	1	SEATV	1	WLPSE	1	SLWLP	1	EATVY	1	TVYLP	1	ARTNI	1
KVVST	1	ATVYL	1	PVSKV	1	PSEAT	1	TVYLP	1	VYLPP	1	NIYYH	1
TTRST	1	VYLPP	1	VSKVV	1	TDEYV	1	GHPYF	1	RTNIY	1	GHPYF	1
STNMS	1	YLPPV	1	SKVVS	1	HAGTS	1	HPYFP	1	IKKPN	1	QRLVW	1
ISTSE	1	SKVVS	1	VARTN	1	VGHPY	1	NNNKI	1	KKPNN	1	WACVG	1
STSET	1	VSTDE	1	ARTNI	1	HPYFP	1	KILVP	1	PNNNK	1	IGEHW	1
TSETT	1	TDEYV	1	GTSRL	1	QYRVF	1	LQYRV	1	NKILV	1	GEHWG	1
LKKYT	1	TSRLL	1	LAVGH	1	HLPDP	1	NKFGF	1	KFGFP	1	DMVDT	1
TTSST	1	FPIKK	1	KILVP	1	PDTQR	1	KFGFP	1	FPDTS	1	MVDTG	1
VLQPP	1	PNNNK	1	VPKVS	1	TENAS	1	TSFYN	1	DTSFY	1	SICKY	1
VTSST	1	ILVPK	1	IHLPD	1	KGSPC	1	SFYNP	1	PDTQR	1	KPYWL	1
HALFT	1	LVPKV	1	HLPDP	1	SPCTN	1	DDTEN	1	VGRGQ	1	AQGHN	1
FLTAL	1	KVSGL	1	LPDPN	1	LINTV	1	RECIS	1	YAANA	1	QGHNN	1
HEDED	1	VSGLQ	1	PDPNK	1	TGFGA	1	ISMDY	1	AGVDN	1	NGICW	1
AVALG	1	RVFRI	1	DPNKF	1	GAMDF	1	SMDYK	1	RECIS	1	NFKEY	1
TAVSS	1	FPDTS	1	NPDTQ	1	TTLQA	1	MDYKQ	1	ECISM	1	EYLRH	1
AVSST	1	TSFYN	1	TQRLV	1	TLQAN	1	CLIGC	1	CISMD	1	MTYIH	1
LLGST	1	SFYNP	1	GVEVG	1	ANKSE	1	LIGCK	1	GSPCT	1	HNYEE	1
LLSVS	1	ISGHP	1	QPLGV	1	VSEPY	1	WGKGS	1	CTNVA	1	DVDNT	1
DLLIR	1	GHPLL	1	PLGVG	1	SEPYG	1	TVIQD	1	NPGDC	1	AYNIP	1
RSSRT	1	HPLLN	1	GVGIS	1	AVGEN	1	VIQDG	1	ELINT	1	SPQYT	1
PPVPV	2	TENAS	1	SGHPL	1	NVPDD	1	GDMVD	1	DTGFG	1	PYFFS	1
RLLAV	2	RECIS	1	LLNKL	1	NLASS	1	MVDTG	1	GFGAM	1	VDFIV	1
PIKKP	2	ECISM	1	ENASA	1	SGSMV	1	GFGAM	1	FGAMD	1	STCCD	1
GLQYR	2	SMDYK	1	NAGVD	1	SMVTS	1	TLQAN	1	GAMDF	1	DTPEW	1
RGQPL	2	PPIGE	1	GVDNR	1	YWLQR	1	SICKY	1	KSEVP	1	AYKYA	1
LLNKL	2	GKGSP	1	VDNRE	1	GNQLF	1	KYPDY	1	TSICK	1	TMCRH	1
YIKGS	2	VAVNP	1	KQTQL	1	VDTTR	1	REQMF	1	KYPDY	1	MCRHY	1
ANLAS	2	VNPGD	1	KPPIG	1	DTTRS	1	FNRAG	1	MVSEP	1	WIKYR	1

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
SLCAA	2	IQDGD	1	PPIGE	1	TSETT	1	IKGSG	1	VSEPY	1	MFLRY	1
FIFQL	2	DGDMV	1	TNVAV	1	YLRHG	1	SSNYF	1	PSGSM	1	MDVKH	1
KITLT	2	GAMDF	1	NVAVN	1	QFIFQ	1	SNYFP	1	GHNNG	1	QLKCP	1
PPPGG	2	VPLDI	1	VNPGD	1	KITLT	1	MVTSD	1	NNGIC	1	WPYLH	1
TSTTA	2	PLDIC	1	NTVIQ	1	AIACQ	1	AQIFN	1	STNMS	1	INHQV	1
TGSGT	2	CKYPD	1	TVIQD	1	PAPKE	1	RAQGH	1	ETTYK	1	KHGYT	1
RPPLT	2	DYIKM	1	DGDMV	1	FSADL	1	NNGIC	1	TYKNT	1	IRTYF	1
PPLTV	2	KMVSE	1	DTGFG	1	SADLD	1	VDTTR	1	EYDLQ	1	VWEVH	1
LDINN	2	SEPYG	1	GFGAM	1	DLDQF	1	TNMSL	1	DLQFI	1	KHCTL	1
NNTVT	2	GDSLF	1	TLQAN	1	DQFPL	1	LCAAI	1	LCKIT	1	SSTWH	1
TTVTT	2	SLFFY	1	KSEVP	1	GRKFL	1	SETTY	1	TYIHS	1	HWTGH	1
QPPTP	2	EQMFV	1	SEVPL	1	KATPT	1	YKNTN	1	MNSTI	1	MAILK	1
PPTPA	2	HLFNR	1	KMVSE	1	MRHKR	1	NFKEY	1	ILEDW	1	WAPKK	1
TPAET	2	FNRAG	1	MVSEP	1	KRSAK	1	EYLRH	1	WNFGL	1	IHTHA	1
TSSTP	2	AGAVG	1	SEPYG	1	RTKRA	1	QLCKI	1	KHTPP	1	DRAHY	1
GLYSR	2	ENVPD	1	YLRRE	1	VEGKT	1	VMTYI	1	FWEVN	1	AHYNI	1
KVVDP	2	DDLYI	1	LRREQ	1	IAEQI	1	MNSTI	1	QFPLG	1	ICSQK	1
PAFVT	2	DLYIK	1	FVRHL	1	ATDTL	1	DWNFG	1	FPLGR	1	HQKRT	1
VTTPT	2	LYIKG	1	VGENV	1	DTLAP	1	NFGLQ	1	GLKAK	1	KRTAM	1
DPDFL	2	YIKGS	1	LYIKG	1	DPVGP	1	EDTYR	1	LGKRK	1	RTAMF	1
PDFLD	2	KGSGS	1	IKGSG	1	VGPSD	1	ACQKH	1	KRSAK	1	YDFAF	1
QTLRT	2	GSGST	1	LQRAQ	1	FSITT	1	PKEDP	1	ATQLY	1	FRDLC	1
LQTIT	2	TANLA	1	AQGHN	1	TTSTD	1	KEDPL	1	TCPPD	1	YCYSL	1
STTPV	2	ANLAS	1	FVTVV	1	DTTPA	1	KFSAD	1	GSMGV	1	FHNIR	1
VPSVP	2	LASSN	1	VVDTT	1	NTVTT	1	DLDQF	1	RTGYI	1	EATVY	2
PSVPS	2	SSNYF	1	VDTTR	1	VTTVT	1	PKFTL	1	TGYIP	1	KFGFP	2
VPSTS	2	GSMVT	1	TTRST	1	PSVLQ	1	KFTLG	1	DPVGP	1	DTSFY	2
TSLSG	2	LQRAQ	1	SLCAA	1	TGGHF	1	QLYKT	1	AILDI	1	LVWAC	2
LIPIV	2	QRAQG	1	AAIST	1	MDTFI	1	QAGTC	1	DINNT	1	VWACV	2
PGSPQ	2	HNNGI	1	AISTS	1	FIVST	1	EGKTI	1	PTFTD	1	GVDNR	2
AETET	2	VTVVD	1	ISTSE	1	PNTVT	1	TIAEQ	1	NYEEI	1	HWGKG	2
SRAAK	2	TVVDT	1	STSET	1	IPGSR	1	YGSMG	1	YEEIP	1	HLFNR	2
RAAKR	2	VVDTT	1	SETTY	1	SRTTQ	1	SMGVF	1	EEIPM	1	DDLYI	2
SGGSG	2	STNMS	1	TTYKN	1	YDNPA	1	YIPLG	1	TFIVS	1	CAAIS	2
QYSSG	2	SLCAA	1	RHGEE	1	GIDVD	1	SFIDA	1	VSTNP	1	YDLQF	2
YSSGS	2	AAIST	1	HGEEY	1	IDVDN	1	GFSIT	1	STNPN	1	DTYRF	2
AFGLT	2	TSETT	1	GEEYD	1	TLYFS	1	INNTV	1	AFVTT	1	AIACQ	2
VVLLL	2	FKEYL	1	LQFIF	1	IVALH	1	TVTTV	1	PTKLI	1	CQKHT	2
VLLLV	2	EEYDL	1	ITLTA	1	HRPAL	1	VTTVT	1	APDPD	1	TCKQA	2
TAAAL	2	DLQFI	1	MNSTI	1	EIELQ	1	VTTHN	1	KVHYY	1	KQAGT	2
GDTPE	2	FQLCK	1	TILED	1	TTSHA	1	FTDPS	1	PAEEI	1	DIIPK	2
SEIAY	2	KITLT	1	GLQPP	1	DIYAD	1	HNYEE	1	TPSTY	1	HNNPT	2
ILLYG	2	ITLTA	1	PGGTL	1	ITDTS	1	EEIPM	1	YTTTS	1	TGGHF	2
DATVP	2	MNSTI	1	GGTLE	1	SGYIP	1	DTFIV	1	TSINN	1	DFIVN	2
SRLSL	2	TILED	1	EDTYR	1	FGGAY	1	TFIVS	1	INNGL	1	RHETE	2
LCQRL	2	GLQPP	1	RFVTS	1	LVSGP	1	TNPNT	1	NGLYD	1	FKSNK	2
ENDST	2	LEDTY	1	FVTSQ	1	PINIT	1	YSRTT	1	GLYDI	1	YKRAE	2
LTLET	2	EDTYR	1	SQAIA	1	PSLIP	1	QVKVV	1	DFITD	1	SMSQW	2
ETIYN	2	PPAPK	1	APKED	1	RKRRK	1	AFVTT	1	DIPIN	1	KYRCD	2
EEASV	2	PKEDP	1	PLKKY	1	LPYFF	1	LITYD	1	YTIIA	1	VMFLR	2
LCPTS	2	KKYTF	1	LKKYT	1	PYFFS	1	DVDNT	1	YMLRK	1	KKNCI	2
PTSVF	2	EVNLK	1	NLKEK	1	PAGTN	1	DNTLY	1	FFSDV	1	AKIGM	2
VALGT	2	KEKFS	1	ADLDQ	1	DSDTG	1	PDPDF	1	HETET	1	KIGML	2
HKGRI	2	DQFPL	1	LDQFP	1	SDTGE	1	IRYSR	1	TPCSQ	1	VQLKC	2

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
DPAAA	2	PLGRK	1	GRKFL	1	ETETA	1	YSRIG	1	QYSSG	1	DSRWP	2
PAAAT	2	KFLLQ	1	FLLQA	1	TAHAL	1	RIGNK	1	KFKEL	1	NEFPF	2
LLKLL	2	KAKPK	1	LLQAG	1	FTAQE	1	SIGAK	1	VRPFK	1	FSRTW	2
PTTPP	2	TLGKR	1	QAGLK	1	AQEAK	1	LQTIT	1	PFKSN	1	MGFKH	2
SPWAP	2	KRKAT	1	TLGKR	1	DAVQV	1	TPSTY	1	YCLYL	1	PTGCI	2
PKKHR	2	TTSST	1	RKATP	1	QVLKR	1	TYTTT	1	WGMVV	1	NWTHI	2
SQTPE	2	SSTST	1	KATPT	1	VLKRK	1	TSINN	1	KCGKN	1	DYYGL	2
TPETP	2	STSTT	1	STTAK	1	AICIE	1	NGLYD	1	GISNI	1	YYVHE	2
LTAHT	2	KRKKR	1	TTAKR	1	IEKQS	1	YDIYA	1	SNISE	1	YVHEG	2
TAHTK	2	AKRTK	1	RKKRK	1	TEVET	1	IYADD	1	WIQRQ	1	RFKKH	2
VIVTL	2	KRTKR	1	RSAKR	1	YSGGS	1	LSGYI	1	IQRQT	1	FKKHC	2
TASTT	2	KRASA	1	AKRTK	1	SQYSS	1	IPANT	1	QHSFN	1	HKSAI	2
RPLLL	2	TQLYK	1	KRTKR	1	YSSGS	1	PANTT	1	VQWAY	1	DSEWQ	2
PLLLS	2	IIPKV	1	SATQL	1	GEGVS	1	TIPFG	1	IAYKY	1	CCTET	2
ILVLL	2	IPKVE	1	TCKQA	1	ICQTP	1	GAYNI	1	NSQAK	1	HTKDG	2
TAASA	2	GKTIA	1	PPDII	1	ILNVL	1	IPINI	1	KKQMS	1	IIFVY	2
SEEED	2	TIAEQ	1	PKVEG	1	SFSEL	1	PINIT	1	QMSMS	1	LIHTH	2
AEPDR	2	ILQYG	1	KVEGK	1	WCIAA	1	GSPQY	1	IVMFL	1	VYDFA	2
LEDLL	2	LQYGS	1	IAEQI	1	AFGLT	1	SPQYT	1	VEFMS	1	GNPYA	2
PRKLP	2	SMGVF	1	AEQIL	1	PSIAD	1	PQYTI	1	RFLQG	1	PYAVC	2
NPYAV	2	VFFGG	1	YGSMG	1	LLSKL	1	AGDFY	1	LQGIP	1	YAVCD	2
RHLDK	2	FFGGL	1	GSMGV	1	TGISN	1	NGWFY	1	NCILL	1	CLKFY	2
SRTRR	2	IGTGS	1	GVFFG	1	QRQTV	1	IVNDN	1	QGSVI	1	YRHYC	2
AGAVG	3	TGSGT	1	IGTGS	1	VQWAY	1	DYLTQ	1	VNSKS	1	CMSCC	2
LSSST	3	SGTGG	1	GSGTG	1	NASAF	1	YLTQA	1	KSHFW	1	YYHAG	3
STIST	3	PLGTR	1	GGRTG	1	AFLKS	1	KRKYL	1	HFWLQ	1	NKLDD	3
LHPSY	3	ATDTL	1	RPPTA	1	ATMCR	1	NNISP	1	WLQPL	1	CISMD	3
RQTVL	3	DTLAP	1	PPTAT	1	KRAEK	1	KAICI	1	KIGML	1	QTQLC	3
STYTS	3	PLTVD	1	PTATD	1	RCDRV	1	ICIEK	1	DNLRN	1	GCKPP	3
VTSDA	4	LTVDP	1	DTLAP	1	DRVDD	1	CIEKQ	1	LVSMD	1	QDGDM	3
NTVTT	4	PSIVS	1	TLAPV	1	QGIPK	1	DSGYG	1	VKHRP	1	FNRAG	3
LRKRR	4	VSLVE	1	TVDPV	1	ILLYG	1	QMLQV	1	LKCPP	1	SNYFP	3
STAAA	4	SFIDA	1	VGPSD	1	NTGKS	1	PCSQY	1	TSNIN	1	HNNGI	3
TTIQR	4	DVSGF	1	PSDPS	1	KSLFG	1	SQYSG	1	NINAG	1	RFVTS	3
RTLED	4	VSGFS	1	SIVSL	1	MSLMK	1	NVLKT	1	TFPNE	1	ACQKH	3
GFMSI	5	GFSIT	1	FIDAG	1	DAKIG	1	MLAKF	1	PFDEN	1	TFWEV	3
EEEDE	5	ITTST	1	DAGAP	1	ATVPC	1	FKELY	1	ENGNP	1	CPPDI	3
GSGGG	6	STDTT	1	PTSVP	1	ALDGN	1	YGVSF	1	LNDKN	1	FIDAG	3
LVLLL	7	TPAIL	1	VPSIP	1	KHRPL	1	RPFKS	1	SRTWS	1	STHNY	3
GGSGG	15	NNTVT	1	PSIPP	1	HRPLV	1	FKSNK	1	QNTNT	1	THNYE	3
		VTTVT	1	IPPDV	1	CPPLL	1	CCDWC	1	DKILT	1	SINIA	3
		TTVTT	1	PDVSG	1	TSNIN	1	IADSI	1	THYEN	1	IRYSR	3
		VTTHN	1	DVSGF	1	SRWPY	1	SIKTL	1	DSTDL	1	IYADD	3
		NPTFT	1	VSGFS	1	PFDEN	1	QQYCL	1	IDYWK	1	YTIIA	3
		FTDPS	1	ITTST	1	RTWSR	1	QYCLY	1	YWKHM	1	YYMLR	3
		SVLQP	1	STDTT	1	NDGDS	1	YCLYL	1	HMRLE	1	TGCNG	3
		LQPPT	1	TDTTP	1	DLRDH	1	CLYLH	1	AIYYK	1	KTGDA	3
		QPPTP	1	DTTPA	1	LRDHI	1	LYLHI	1	QAIEL	1	CVDNN	3
		GHFTL	1	TTPAI	1	RLECA	1	SWGMV	1	NEKWT	1	RHTIC	3
		SSSTI	1	TPAIL	1	EMGFK	1	GMVVL	1	FDGDI	1	QYCLY	3
		STIST	1	PAILD	1	QVVPT	1	LLVRY	1	GDICN	1	ACSWG	3
		THNYE	1	AILDI	1	KALQA	1	NRETI	1	THIYI	1	MIEPP	3
		NYEEI	1	TDPSV	1	FDGDI	1	KLLCV	1	GQVDY	1	SQMVQ	3
		TNPNT	1	QPPTP	1	VEGQV	1	CVSPM	1	DYYGL	1	DCATM	3

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		NPNTV	1	PPTPA	1	GQVDY	1	AALYW	1	YGLYY	1	MSLMK	3
		TVTSS	1	PTPAE	1	GLYYV	1	GISNI	1	VHEGI	1	SKSHF	3
		SSTPI	1	TPAET	1	QFKDD	1	TPEWI	1	HEGIR	1	FWLQP	3
		STPIP	1	PAETG	1	KDDAE	1	LQHSF	1	GIRTY	1	DATVP	3
		TPIPG	1	FTLSS	1	VHAGG	1	CTFEL	1	QFKDD	1	VPCWN	3
		IPGSR	1	TLSSS	1	GGQVI	1	ELSQM	1	KNKVW	1	LKCPP	3
		SRPVA	1	LSSST	1	TSVFS	1	VQWAY	1	QVILC	1	KCPPL	3
		LYSRT	1	STIST	1	LANHP	1	DTNSN	1	PEIIR	1	TFPNE	3
		QQVKV	1	EEIPM	1	HPAAT	1	KSNSQ	1	QHLAN	1	GQNTN	3
		QVKVV	1	DTFIV	1	AATHT	1	QAKIV	1	HLANH	1	LNVCQ	3
		AYEGI	1	NPNTV	1	LGTEE	1	HYKRA	1	SEPDT	1	RDHID	3
		EGIDV	1	TSSTP	1	GTEET	1	CDRVD	1	DSAPI	1	IYYKA	3
		GIDVD	1	GSRPV	1	EETQT	1	FLRYQ	1	TAFNS	1	VEVQF	3
		IDVDN	1	SRPVA	1	LLHRD	1	LRYQG	1	AFNSS	1	NTMHY	3
		VDNTL	1	GLYSR	1	VDSAP	1	FLQGI	1	NSSHK	1	THIYI	3
		TLYFS	1	LYSRT	1	GDANT	1	QGIPK	1	TPIVH	1	GNPCH	3
		LYFSS	1	VVDPA	1	ANTLK	1	IPKKN	1	LKGDA	1	LTAFN	3
		INIAP	1	VDPAF	1	CLRYR	1	GAANT	1	TLKCL	1	HNVKH	3
		PDPDF	1	DPAFV	1	HWTGH	1	FGMSL	1	RYRFK	1	TGFMS	3
		DFLDI	1	PAFVT	1	HKSAI	1	MSLMK	1	FKKHC	1	CFCVL	3
		DIVAL	1	EGIDV	1	LTYDS	1	SLMKF	1	KHKSA	1	WITAA	3
		PALTS	1	VDNTL	1	FLSQV	1	SKSHF	1	IVTLT	1	YCYEQ	3
		RTGIR	1	FSSND	1	TITVS	1	MDVKH	1	PKTIT	1	IVTFC	3
		TGIRY	1	APDPD	1	STGFM	1	PLLIT	1	AATKY	1	VTFCC	3
		GIRYS	1	PDPDF	1	KYPLL	1	LITSN	1	ATKYP	1	CDKCL	3
		RYSRI	1	FLDIV	1	STWPT	1	ITSNI	1	YPLLK	1	EQQYN	3
		YSRIG	1	IVALH	1	TWPTT	1	SNINA	1	SPWAP	1	QQYNK	3
		SRIGN	1	VALHR	1	PPRPI	1	INAGT	1	WAPKK	1	IRGRW	3
		RIGNK	1	ALHRP	1	PRPIP	1	DSRWP	1	PKKHR	1	TGRCM	3
		TRSGK	1	LHRPA	1	IPKPS	1	HNRLV	1	TPLSC	1	VGHPY	4
		RSGKS	1	RPALT	1	KPSPW	1	VFTFP	1	PLSCC	1	KPNNN	4
		IDPAE	1	ALTSR	1	SQTPE	1	EFPFD	1	SCCTE	1	PNNNK	4
		PAEEI	1	LTSRR	1	TPETP	1	VYELN	1	HTKDG	1	SMDYK	4
		TITPS	1	TSRRT	1	PLSCC	1	NWKSF	1	CVLLC	1	NTVIQ	4
		ITPST	1	RRTGI	1	SCCTE	1	LPTFK	1	LWITA	1	GAMDF	4
		TSHAA	1	YSRIG	1	KDGLT	1	GQNTN	1	RCFIV	1	CKYPD	4
		AASPT	1	QTLRT	1	TSLII	1	RLNVC	1	IVYII	1	YIKMV	4
		TSINN	1	TLRTR	1	ASAFR	1	VCQDK	1	IIFVY	1	RREQM	4
		INNGL	1	LRTRS	1	THARF	1	DKILT	1	IFVYI	1	GSMVT	4
		LYDIY	1	RTRSG	1	GDTPT	1	HYEND	1	MHGDT	1	IFNKP	4
		IYADD	1	RSGKS	1	LHEYM	1	RDHID	1	HEYML	1	NQLFV	4
		YADDF	1	IGAKV	1	DLQPE	1	HMRLE	1	QLNDS	1	MSLCA	4
		TPVPS	1	LSTID	1	IRTLE	1	LECAI	1	YNIVT	1	TADVM	4
		SGYIP	1	PAEEI	1	LMGTL	1	REMGF	1	HVDIR	1	DVMTY	4
		NTTIP	1	EEIEL	1	QKRTA	1	AVSKN	1	IVCPI	1	TYIHS	4
		IPFGG	1	LQTIT	1	KLPQL	1	ETIYN	1	VCPIC	1	KYTFW	4
		PFGGA	1	TITPS	1	QLCTE	1	NSQYS	1	PICSQ	1	STNPN	4
		GGAYN	1	ITPST	1	LCTEL	1	GYTVE	1	RTAMF	1	PSTYT	4
		GAYNI	1	HAASP	1	RREVY	1	TNWTH	1	IILEC	1	TSINN	4
		DIPIN	1	AASPT	1	YRDGN	1	IYICE	1	FAFRD	1	PSYYM	4
		APSLI	1	ASPTS	1	YSLYG	1	DYYGL	1	DKCLK	1	TAHAL	4
		PSLIP	1	FITDT	1	LYGTT	1	YVHEG	1	SEYRH	1	GCVDN	4
		SLIPI	1	TTPVP	1	PLCDL	1	RTYFV	1	CYSLY	1	VRPFK	4
		LIPIV	1	VPSVP	1	RCINC	1	FKDDA	1	DLLIR	1	NKSTC	4

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		IVPGS	1	PSVPS	1	RCMSC	1	DAEKY	1	QKPLC	1	KSTCC	4
		IADAG	1	SVPST	1	LPSEA	2	KVWEV	1	KPLCP	1	YLHIQ	4
		YYMLR	1	PSTSL	1	PVPVS	2	GQVIL	1	KKQRF	1	RYKCG	4
		RKRRK	1	SLSGY	1	SKVVS	2	EPDTG	1	RGRWT	1	CGKNR	4
		AGTNG	1	GYIPA	1	KILVP	2	TGNPC	1	WTGRC	1	MVQWA	4
		TNGEE	1	IPANT	1	ILVPK	2	CHTTK	1	CCRSS	1	HNRLV	4
		NGEEG	1	ANTTI	1	DPNKF	2	DSAPI	1	ATVYL	2	DKNWK	4
		GEEGT	1	IPFGG	1	KFGFP	2	NSSHK	1	YLPPV	2	HMRLE	4
		YVEAV	1	PFGGA	1	FPDTS	2	HKGRI	1	PIKKP	2	FKHIN	4
		VEAVV	1	AYNIP	1	VEVGR	2	GRINC	1	SGLQY	2	EVQFD	4
		VVEKK	1	YNIPL	1	LGVGI	2	TPIVH	1	LQYRV	2	HYTNW	4
		KKTGD	1	PLVSG	1	SGHPL	2	TLKCL	1	IHLPD	2	KNKVW	4
		TGDAI	1	DIPIN	1	NASAY	2	KCLRY	1	DPNKF	2	QVILC	4
		GDAIS	1	QAPSL	1	GVDNR	2	RFKKH	1	GFPDT	2	QHLAN	4
		DAISD	1	APSLI	1	GSPCT	2	KHCTL	1	TSFYN	2	ANHPA	4
		AISDD	1	TIIAD	1	CPPLE	2	TLYTA	1	SFYNP	2	AATHT	4
		ENDSD	1	DAGDF	1	PPLEL	2	YTAVS	1	YNPDT	2	GHNVK	4
		SDTGE	1	LHPSY	1	VDTGF	2	TGHNV	1	NKLDD	2	NVKHK	4
		EDLVD	1	MLRKR	1	NKSEV	2	VKHKS	1	DYKQT	2	WQRDQ	4
		VDFIV	1	KRRKR	1	MVSEP	2	SEWQR	1	QTQLC	2	WKLSR	4
		LTQAE	1	DVSLA	1	GDSLF	2	QVKIP	1	LCLIG	2	CYSSN	4
		AETET	1	ADPAG	1	EQMFV	2	IPKTI	1	KGSPC	2	GSTWP	4
		ALFTA	1	AGTNG	1	RHLFN	2	TITVS	1	PCTNV	2	LCFCV	4
		AVQVL	1	YVEAV	1	LFNRA	2	ILKWK	1	INTVI	2	TLHEY	4
		QVLKR	1	TGDAI	1	FNRAG	2	AATKY	1	IQDGD	2	TFCCK	4
		VLKRK	1	DAISD	1	LYIKG	2	YPLLK	1	DMVDT	2	KCDST	4
		SPLSD	1	AISDD	1	KGSGS	2	PWAPK	1	FFYLR	2	AMFQD	4
		SDISG	1	SDDEN	1	FPTPS	2	PKKHR	1	QMFVR	2	IILEC	4
		ICIEK	1	TGEDL	1	LRHGE	2	SDQDQ	1	LFNRA	2	EVYDF	4
		RAAKR	1	LTQAE	1	EYDLQ	2	DQDQS	1	FNRAG	2	NCQKP	4
		AKRRL	1	QAETE	1	TLTAD	2	CCTET	1	ENVPD	2	KQRFH	4
		ESEDS	1	ETETA	1	LTADV	2	CTETQ	1	NVPDD	2	RFHNI	4
		SGYGN	1	TETAH	1	ADVMT	2	TETQW	1	DLYIK	2	WTGRC	4
		GYGNT	1	HALFT	1	MNSTI	2	AHTKD	1	LYIKG	2	RTNIY	5
		YGNTE	1	QHRDA	1	LQPPP	2	TNLDT	1	RAQGH	2	HPYFP	5
		NTEVE	1	HRDAV	1	TSQAI	2	NLDTA	1	QGHNN	2	YFPIK	5
		EVETQ	1	RDAVQ	1	KFSAD	2	VYIIF	1	TNFKE	2	QYRVF	5
		QMLQV	1	DAVQV	1	QFPLG	2	IFVYI	1	LQFIF	2	NAGVD	5
		ETETP	1	AVQVL	1	RKFLL	2	HTHAR	1	QLCKI	2	YKQTQ	5
		GGGCS	1	VQVLK	1	FTLGK	2	HGDTP	1	TADVM	2	QMFVR	5
		SGSGG	1	LKRKY	1	GKRKA	2	PTLHE	1	DVMTY	2	ENVPD	5
		SGGEG	1	KYLVS	1	KKRKL	2	LHEYM	1	IHSMN	2	LYIKG	5
		PLTNI	1	VSPLS	1	AKRTK	2	YMLDL	1	HSMNS	2	CKITL	5
		NVLKT	1	SPLSD	1	TKRAS	2	QPETT	1	NFGLQ	2	MNSTI	5
		AKAAM	1	PLSDI	1	TCPPD	2	LYCYE	1	EDTYR	2	EDWNF	5
		LAKFK	1	ISPRL	1	MGVFF	2	EIDGP	1	TYRFV	2	FVTSQ	5
		VSFSE	1	PRLKA	1	GIGTG	2	YNIVT	1	TSQAI	2	GYIPL	5
		SFSEL	1	QSRAA	1	GSGTG	2	IVTFC	1	CQKHT	2	RYSRI	5
		FSELV	1	SRAAK	1	GTGGR	2	KCDST	1	PLKKY	2	SRIGN	5
		SELVR	1	RAAKR	1	GRTGY	2	CVQST	1	LKKYT	2	TYTTT	5
		KSNKS	1	AAKRR	1	LGTRP	2	VQSTH	1	KKYTF	2	PTSIN	5
		AAFGL	1	KRRLF	1	TRPPT	2	VDIRT	1	EKFSA	2	NNGLY	5
		LTPSI	1	RRLFE	1	VRPPL	2	MGTLG	1	DQFPL	2	YDIYA	5
		SIADS	1	FESED	1	TVDPV	2	TLGIV	1	QAGLK	2	TIPFG	5

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
		DSIKT	1	ESEDS	1	VDPVG	2	CPICS	1	KPKFT	2	SYYML	5
		IQSLA	1	EDSGY	1	GPSDP	2	HQKRT	1	PKFTL	2	RLPYF	5
		VVLLL	1	GNTEV	1	SVPSI	2	TAMFQ	1	KATPT	2	DTGED	5
		RETIE	1	NTEVE	1	SIPPD	2	AMFQD	1	RHKRS	2	KYLVS	5
		TAAAL	1	TEVET	1	SITTS	2	MFQDP	1	TQLYK	2	KAICI	5
		YKTGI	1	QMLQV	1	TDTTP	2	QDPQE	1	QLYKT	2	ETQQM	5
		KTGIS	1	MLQVE	1	PAETG	2	PQLCT	1	YKTCK	2	PFKSN	5
		TGISN	1	EGRHE	1	AETGG	2	CTELQ	1	GTCPP	2	QQYCL	5
		ISEVY	1	SQYSG	1	DTFIV	2	QTTIH	1	EGKTI	2	CLYLH	5
		EVYGD	1	EGVSE	1	PIPGS	2	TTIHD	1	FFGGL	2	CSWGM	5
		TPEWI	1	VSERH	1	QQVKV	2	IHDII	1	GRTGY	2	WGMVV	5
		HSFND	1	SERHT	1	VDPAF	2	DIILE	1	LDINN	2	LYWYK	5
		ELSQM	1	ERHTI	1	PAFVT	2	REVYD	1	NNPTF	2	WAYDN	5
		NDIVD	1	TICQT	1	TKLIT	2	YDFAF	1	NPTFT	2	AYDND	5
		DIVDD	1	PLTNI	1	FSSND	2	YRDGN	1	TPAET	2	KKQMS	5
		IVDDS	1	TNILN	1	INIAP	2	NPYAV	1	ETGGH	2	GDWKQ	5
		DDSEI	1	NAKAA	1	DFLDI	2	CDKCL	1	TGGHF	2	YGAAN	5
		AYKYA	1	KAAML	1	FLDIV	2	DKCLK	1	STHNY	2	FGMSL	5
		ASAFL	1	AMLAK	1	TSRRT	2	LKFYS	1	YSRTT	2	YIDDN	5
		FLKSN	1	ELYGV	1	GIRYS	2	FYSKI	1	LITYD	2	ITSNI	5
		NSQAK	1	YGVSF	1	DLSTI	2	RHYCY	1	TYDNP	2	LTHYE	5
		QAKIV	1	FSELV	1	PAEEI	2	YCYSL	1	YDNPA	2	KHMRL	5
		KDCAT	1	ELVRP	1	PSTYT	2	YSLYG	1	YEGID	2	KHINH	5
		YKRAE	1	LVRPF	1	NTTIP	2	SLYGT	1	VDNTL	2	CIKKH	5
		RAEKK	1	KSTCC	1	TIPFG	2	YGTTL	1	YFSSN	2	HIYIC	5
		KKQMS	1	AAFGL	1	PFGGA	2	LEQQY	1	NSINI	2	YFVQF	5
		QMSMS	1	GLTPS	1	IPLVS	2	QQYNK	1	PDPDF	2	NSSHK	5
		VMFLR	1	IADSI	1	VSGPD	2	LLIRC	1	DFLDI	2	KHKSA	5
		LRYQG	1	IKTLL	1	DIPIN	2	RHLDK	1	ALHRP	2	SEWQR	5
		LTALK	1	LLVRY	1	IPINI	2	KKQRF	1	RIGNK	2	GFMSI	5
		LQGIP	1	GKNRE	1	TDQAP	2	IRGRW	1	GNKQT	2	SVSTY	5
		GIPKK	1	IEKLL	1	IVPGS	2	ATVYL	2	NKQTL	2	HTHAR	5
		IPKKN	1	EKLLS	1	PGSPQ	2	YLPPV	2	QTLRT	2	EIDGP	5
		TGKSL	1	LLSKL	1	KRLPY	2	STDEY	2	GKSIG	2	PICSQ	5
		KSLFG	1	SKLLC	1	FFSDV	2	YVART	2	ITPST	2	DGNPY	5
		LQGSV	1	KLLCV	1	DVSLA	2	NIYYH	2	STYTT	2	DKCLK	5
		FVNSK	1	TGISN	1	GEEGT	2	YYHAG	2	SINNG	2	KISEY	5
		VNSKS	1	NISEV	1	GDAIS	2	YHAGT	2	NNGLY	2	CQKPL	5
		DAKIG	1	PEWIQ	1	AISDD	2	AVGHP	2	YDIYA	2	TVYLP	6
		MLDDA	1	VLQHS	1	SDDEN	2	YFPIK	2	DIYAD	2	FPIKK	6
		NLRNA	1	MVQWA	1	DTGED	2	FRIHL	2	YADDF	2	IGCKP	6
		LRNAL	1	AYDND	1	EDLVD	2	PDPNK	2	GYIPA	2	QANKS	6
		NALDG	1	DDSEI	1	AHALF	2	DTSFY	2	GGAYN	2	TSICK	6
		LVSMD	1	EIAYK	1	QHRDA	2	FYNPD	2	SGPDI	2	SEPYG	6
		LLITS	1	IAYKY	1	HRDAV	2	LVWAC	2	GPDIP	2	RHLFN	6
		ITSNI	1	YAQLA	1	LSDIS	2	NASAY	2	PDIPI	2	DAQIF	6
		TSNIN	1	LADTN	1	ISGCV	2	GVDNR	2	DQAPS	2	FNKPY	6
		SNINA	1	NSNAS	1	SGYGN	2	VDNRE	2	TIIAD	2	PYWLQ	6
		NINAG	1	SNASA	1	GRHET	2	NRECI	2	IADAG	2	YWLQR	6
		AGTDS	1	SAFLK	1	ETETP	2	QTQLC	2	DFYLH	2	GHNNG	6
		LVVFT	1	RAEKK	1	SQYSG	2	GCKPP	2	YYMLR	2	WGNQL	6
		FPFDE	1	GDWKQ	1	GGGCS	2	KPPIG	2	KRLPY	2	YLRHG	6
		NWKSF	1	KQIVM	1	QYSSG	2	GSPCT	2	GTNGE	2	LDQFP	6
		WKSFF	1	LRYQG	1	GSGGE	2	NVAVN	2	EGTGC	2	MRHKR	6

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		KSFFS	1	RYQGV	1	SGGEG	2	AVNPG	2	TGCNG	2	SATQL	6
		RLSLH	1	YQGVE	1	QTPLT	2	GDCPP	2	KTGDA	2	QYGSM	6
		LSLHE	1	QGVEF	1	TSNAK	2	LELIN	2	AISDD	2	NPTFT	6
		DEDKE	1	LTALK	1	SNAKA	2	LINTV	2	DSDTG	2	YSRTT	6
		EDKEN	1	TALKR	1	KAAML	2	INTVI	2	TGEDL	2	KLITY	6
		DSLPT	1	RFLQG	1	MLAKF	2	NTVIQ	2	LVDFI	2	GGAYN	6
		SLPTF	1	FLQGI	1	STCCD	2	DTGFG	2	IVNDN	2	YMLRK	6
		VSGQN	1	GIPKK	1	IADSI	2	GAMDF	2	YLTQA	2	LPYFF	6
		SGQNT	1	IPKKN	1	SIKTL	2	ICTSI	2	TETAH	2	EGTGC	6
		QDKIL	1	GAANT	1	IKTLL	2	TSICK	2	DAVQV	2	GYGNT	6
		LRDHI	1	GKSLF	1	TLLQQ	2	SEPYG	2	LKAIC	2	GCSQY	6
		MRLEC	1	KSLFG	1	WGMVV	2	PYGDS	2	ICIEK	2	HTICQ	6
		LECAI	1	FGMSL	1	KLLSK	2	FFYLR	2	IEKQS	2	VKDCA	6
		AIYYK	1	FLQGS	1	VSPMC	2	FYLRR	2	GRHET	2	GGDWK	6
		IYYKA	1	ICFVN	1	MIEPP	2	RREQM	2	ETPCS	2	DWKQI	6
		GFKHI	1	LADAK	1	PPKLR	2	QMFVR	2	GGCSQ	2	LRYQG	6
		FKHIN	1	DAKIG	1	KTGIS	2	RHLFN	2	SQYSS	2	NINAG	6
		HQVVP	1	GMLDD	1	VYGDT	2	LFNRA	2	SERHT	2	TLCQR	6
		PTLAV	1	DATVP	1	VDDSE	2	DLYIK	2	TNILN	2	AIYYK	6
		LAVSK	1	IDDNL	1	DDSEI	2	LYIKG	2	NILNV	2	REMGF	6
		AVSKN	1	DNLRN	1	NSNAS	2	CWGNQ	2	FKSNK	2	QVVPT	6
		VSKNK	1	LDGNL	1	RHYKR	2	WGNQL	2	NKSTC	2	APTGC	6
		NKALQ	1	RPLVQ	1	RAEKK	2	FVTVV	2	WCIAA	2	DICNT	6
		ALQAI	1	SNINA	1	KQIVM	2	TRSTN	2	TPSIA	2	YYGLY	6
		LQAIE	1	TDSRW	1	LRYQG	2	CAAIS	2	ADSIK	2	HEGIR	6
		QAIEL	1	YLHNR	1	LYGAA	2	TYKNT	2	QQYCL	2	PCHTT	6
		LQLTL	1	DENGN	1	WLQPL	2	KEYLR	2	QSLAC	2	DSAPI	6
		LTLET	1	ENGNP	1	GMLDD	2	HGEEY	2	LACSW	2	CNSNT	6
		TIYNS	1	SRLSL	1	DATVP	2	GEEYD	2	CGKNR	2	WTGHN	6
		IYNSQ	1	DGDSL	1	TVPCW	2	LQFIF	2	VSPMC	2	LTYDS	6
		YNSQY	1	LPTFK	1	LDGNL	2	FQLCK	2	PKLRS	2	DQDQS	6
		LQDVS	1	GQNTN	1	DVKHR	2	ITLTA	2	YKTGI	2	AFRCF	6
		VSLEV	1	QRLNV	1	WPYLH	2	TADVM	2	QRQTV	2	FRCFI	6
		TAPTG	1	STDLR	1	FDENG	2	TYIHS	2	QWAYD	2	CCKCD	6
		TVEVQ	1	DLRDH	1	SRTWS	2	STILE	2	DNDIV	2	RLCVQ	6
		FDGDI	1	RLECA	1	GQNTN	2	LEDWN	2	EIAYK	2	IVCPI	6
		ICNTM	1	AREMG	1	QRLNV	2	DTYRF	2	AYKYA	2	ECVYC	6
		YICEE	1	KHINH	1	AIELQ	2	LKKYT	2	YKYAQ	2	YGTTL	6
		EEASV	1	VPTLA	1	IYICE	2	KKYTF	2	KDCAT	2	QYNKP	6
		VVEGQ	1	ALQAI	1	CEEAS	2	LDQFP	2	MSMSQ	2	RCINC	6
		EGQVD	1	QAIEL	1	SVTVV	2	DQFPL	2	SQWIK	2	HNIRG	6
		YGLYY	1	ELQLT	1	YGLYY	2	QFPLG	2	CDRVD	2	RGRWT	6
		YVHEG	1	LQDVS	1	GIRTY	2	LGRKF	2	WKQIV	2	KKPNN	7
		VQFKD	1	DVSLE	1	FKDDA	2	QAGLK	2	LRYQG	2	ACVGV	7
		FKDDA	1	APTGC	1	AEKYS	2	ATQLY	2	RYQGV	2	NRECI	7
		DDAEK	1	GYTVE	1	KVWEV	2	TQLYK	2	EFMSF	2	ISMDY	7
		AEKYS	1	VTVVE	1	EVHAG	2	GTCPP	2	KNCIL	2	DYKQT	7
		GGQVI	1	TVVEG	1	SVFSS	2	TCPPD	2	YGAAN	2	CTNVA	7
		GQVIL	1	VEGQV	1	VSSPE	2	PPDII	2	NTGKS	2	RHGEE	7
		SNEVS	1	HEGIR	1	RQHLA	2	PDIIP	2	LFGMS	2	LEDWN	7
		EVSSP	1	EGIRT	1	PAATH	2	DIIPK	2	FVNSK	2	PDIIP	7
		SSPEI	1	DDAEK	1	TKAVA	2	IAEQI	2	DAKIG	2	YIPLG	7
		SPEII	1	EVHAG	1	IQRPR	2	QILQY	2	AKIGM	2	SRTTQ	7
		EIIRQ	1	HAGGQ	1	QRPRS	2	GSMGV	2	YIDDN	2	TYDNP	7

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		TKAVA	1	AGGQV	1	ILTAF	2	FSITT	2	DVKHR	2	IDVDN	7
		KAVAL	1	TSVFS	1	KGRIN	2	NTVTT	2	ITSNI	2	IGNKQ	7
		VALGT	1	SVFSS	1	TTPIV	2	TVTTH	2	TDSRW	2	ITDQA	7
		LGTEE	1	VFSSN	1	DANTL	2	NNPTF	2	RWPYL	2	TETAH	7
		DTGNP	1	SSNEV	1	TLYTA	2	NPTFT	2	PYLHN	2	ETAHA	7
		TTKLL	1	SPEII	1	IPKTI	2	TGGHF	2	YLHNR	2	AKAAM	7
		SAPIL	1	PEIIR	1	GFMSI	2	GGHFT	2	EFPFD	2	YGVSF	7
		LTAFN	1	EIIRQ	1	PLLKL	2	GHFTL	2	FPFDE	2	YKCGK	7
		AFNSS	1	IRQHL	1	SPWAP	2	TISTH	2	NGNPV	2	ISEVY	7
		NSSHK	1	RQHLA	1	PWAPK	2	ISTHN	2	WKSFF	2	EWIQR	7
		KGRIN	1	LANHP	1	DTAST	2	STHNY	2	FFSRT	2	IQRQT	7
		SNTTP	1	ANHPA	1	TLLAC	2	YEEIP	2	TWSRL	2	CDRVD	7
		GDANT	1	PAATH	1	YTSLI	2	VSTNP	2	PTFKC	2	RVDDG	7
		DANTL	1	HTKAV	1	WITAA	2	TPIPG	2	KCVSG	2	IPKKN	7
		ANTLK	1	TKAVA	1	LFLIH	2	QQVKV	2	LNVCQ	2	SLMKF	7
		TAVSS	1	ALGTE	1	MHGDT	2	FVTTP	2	KILTH	2	QGSVI	7
		SAIVT	1	GTEET	1	LQPET	2	VTTPT	2	DLRDH	2	PYLHN	7
		AIVTL	1	TIQRP	1	DSSEE	2	NPAYE	2	RDHID	2	PFDEN	7
		LTYDS	1	HTTKL	1	EPDRA	2	PAYEG	2	KHMRL	2	TWSRL	7
		TYDSE	1	LLHRD	1	PDRAH	2	GIDVD	2	LECAI	2	TFKCV	7
		FLSQV	1	VDSAP	1	GIVCP	2	IDVDN	2	EMGFK	2	NDSTD	7
		QVKIP	1	APILT	1	PRKLP	2	GNKQT	2	NHQVV	2	SKNKA	7
		VKIPK	1	TTPIV	1	QTTIH	2	IGAKV	2	NSQYS	2	WTLQD	7
		KTITV	1	LKGDA	1	IVYRD	2	TTSHA	2	WTLQD	2	DGDIC	7
		TVSTG	1	GDANT	1	IRCIN	2	INNGL	2	TGCIK	2	GDICN	7
		VSTGF	1	LKCLR	1	QKPLC	2	GYIPA	2	KKHGY	2	IYICE	7
		MAILK	1	LRYRF	1	QRHLD	2	LIPIV	2	TVEVQ	2	RTYFV	7
		ILKWK	1	YTAVS	1	TGRCM	2	IIADA	2	ICNTM	2	FKDDA	7
		YSSNE	1	KSAIV	1	RRETQ	2	LHPSY	2	IYICE	2	SRCYS	7
		AATKY	1	AIVTL	1	ATVYL	3	HPSYY	2	YICEE	2	LGSTW	7
		LKLLG	1	VTLTY	1	DEYVA	3	PYFFS	2	QVDYY	2	IFVYI	7
		HRRLS	1	LTYDS	1	KVSGL	3	AGTNG	2	GLYYV	2	GIVCP	7
		SSDQD	1	EWQRD	1	VFRIH	3	WFYVE	2	LYYVH	2	HYCYS	7
		ETPAT	1	RDQFL	1	PDTSF	3	YVEAV	2	RTYFV	2	LIRCI	7
		SSLHL	1	FLSQV	1	NPDTQ	3	AISDD	2	TYFVQ	2	CCRSS	7
		LTAHT	1	KTITV	1	DTQRL	3	DFIVN	2	AEKYS	2	EYVAR	8
		DGLTV	1	ITVST	1	ISGHP	3	FIVND	2	EKYSK	2	NNKIL	8
		GLTVI	1	TVSTG	1	HPLLN	3	DNDYL	2	YSKNK	2	VFRIH	8
		TVIVT	1	VSTGF	1	LNKLD	3	HALFT	2	CPTSV	2	DPNKF	8
		VIVTL	1	ADPAA	1	ENASA	3	KQHRD	2	IIRQH	2	FGFPD	8
		IVTLH	1	LLGST	1	SAYAA	3	QVLKR	2	TQTTI	2	DDTEN	8
		TASTT	1	GSTWP	1	NAGVD	3	RKYLV	2	PRSEP	2	DTGFG	8
		TLLAC	1	PTTPP	1	VIQDG	3	KYLVS	2	RSEPD	2	LDICT	8
		ACFLL	1	TPPRP	1	IQDGD	3	ISGCV	2	TGNPC	2	DYIKM	8
		CLLIR	1	PPRPI	1	MVDTG	3	VDNNI	2	ILTAF	2	ASSNY	8
		PLLLS	1	PRPIP	1	DTGFG	3	LKAIC	2	HKGRI	2	AQIFN	8
		LLSVS	1	WAPKK	1	GSGST	3	IEKQS	2	GRINC	2	NKPYW	8
		TYTSL	1	HRRLS	1	RAQGH	3	GNTEV	2	HLKGD	2	VDTTR	8
		TSLII	1	RRLSS	1	FVTVV	3	QYSGG	2	KCLRY	2	TRSTN	8
		AASAF	1	TVLQS	1	TVVDT	3	TPLTN	2	VKHKS	2	NMSLC	8
		YIIFV	1	SSLHL	1	RHGEE	3	ILNVL	2	HKSAI	2	NTNFK	8
		FVYIP	1	LTAHT	1	EEYDL	3	TSNAK	2	VTLTY	2	YIHSM	8
		YIPLF	1	HTKDG	1	GLQPP	3	LAKFK	2	TLTYD	2	HSMNS	8
		ARFLI	1	TKDGL	1	QPPPG	3	AKFKE	2	EWQRD	2	QAIAC	8

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		DTPTL	1	DGLTV	1	PGGTL	3	KELYG	2	QRDQF	2	RTKRA	8
		PTLHE	1	GLTVI	1	GGTLE	3	LVRPF	2	DQFLS	2	QILQY	8
		HEYML	1	LTVIV	1	QAIAC	3	LQQYC	2	QFLSQ	2	TFTDP	8
		EYMLD	1	TVIVT	1	APKED	3	HIQSL	2	KTITV	2	PTKLI	8
		LQPET	1	LDTAS	1	FPLGR	3	NISEV	2	MAILK	2	VDNTL	8
		PETTD	1	CVCLL	1	FLLQA	3	SEVYG	2	YSSNE	2	NIAPD	8
		ETTDL	1	LLIRP	1	STTAK	3	EVYGD	2	TKYPL	2	DFITD	8
		YEQLN	1	LIILV	1	TTAKR	3	VYGDT	2	GSTWP	2	KQHRD	8
		LNDSS	1	WITAA	1	TAKRK	3	WIQRQ	2	STWPT	2	TETPC	8
		NDSSE	1	IVYII	1	GKTIA	3	IQRQT	2	APKKH	2	CSQYS	8
		SSEEE	1	IIFVY	1	EQILQ	3	NDCTF	2	QSQTP	2	VSERH	8
		EEEDE	1	TLHEY	1	PVGPS	3	DCTFE	2	CCTET	2	CQTPL	8
		IDGPA	1	DLQPE	1	SIVSL	3	TFELS	2	QWTVL	2	HSFND	8
		DGPAG	1	QPETT	1	VSLVE	3	MVQWA	2	QSSLH	2	RHYKR	8
		YNIVT	1	PETTD	1	AILDI	3	NDIVD	2	VTLHP	2	QWIKY	8
		TFCCK	1	ETTDL	1	LDINN	3	LKSNS	2	LACFL	2	EFMSF	8
		STLRL	1	LNDSS	1	DPSVL	3	NSQAK	2	LCFCV	2	IGMLD	8
		VQSTH	1	DSSEE	1	VLQPP	3	SQAKI	2	YTSLI	2	TDSRW	8
		VDIRT	1	SSEEE	1	VKVVD	3	KIVKD	2	WITAA	2	RWPYL	8
		DIRTL	1	EEDEI	1	AFVTT	3	DCATM	2	AFRCF	2	ENGNP	8
		RTLED	1	EIDGP	1	VDNTL	3	KYRCD	2	FRCFI	2	NWKSF	8
		TLGIV	1	IDGPA	1	APDPD	3	DWKQI	2	VYIIF	2	ENDGD	8
		KRTAM	1	GPAGQ	1	PDPDF	3	IVMFL	2	FLIHT	2	DHIDY	8
		TAMFQ	1	AGQAE	1	QTLRT	3	RYQGV	2	IHTHA	2	NHQVV	8
		ERPRK	1	QAEPD	1	IGAKV	3	VEFMS	2	MLDLQ	2	QYSNE	8
		TIHDI	1	DRAHY	1	AEEIE	3	MSFLT	2	LDLQP	2	YSNEK	8
		KQQLL	1	CDSTL	1	EEIEL	3	GIPKK	2	QPETT	2	HGYTV	8
		RREVY	1	LLMGT	1	TITPS	3	SLFGM	2	PETTD	2	VQFDG	8
		EVYDF	1	TLGIV	1	NGLYD	3	LFGMS	2	DLYCY	2	QVDYY	8
		DFAFR	1	GIVCP	1	DTSTT	3	LMKFL	2	LYCYE	2	TGNPC	8
		FRDLC	1	KRTAM	1	PVPSV	3	KFLQG	2	YEQLN	2	NPCHT	8
		LCIVY	1	PQERP	1	VPSVP	3	SVICF	2	EIDGP	2	TPIVH	8
		YRDGN	1	QERPR	1	ADAGD	3	VICFV	2	PAGQA	2	STGFM	8
		DKCLK	1	KLPQL	1	DAGDF	3	FVNSK	2	AGQAE	2	LKWKL	8
		LKFYS	1	ELQTT	1	MADPA	3	NSKSH	2	GQAEP	2	KWKLS	8
		FYSKI	1	LQTTI	1	AGTNG	3	DDNLR	2	QAEPD	2	QSQTP	8
		KISEY	1	KQQLL	1	YVEAV	3	NLRNA	2	EPDRA	2	LSCCT	8
		YCYSL	1	QLLRR	1	AVVEK	3	LDGNL	2	DRAHY	2	LLCFC	8
		SLYGT	1	LLRRE	1	VEKKT	3	LVSMD	2	LCVQS	2	VSTYT	8
		LYGTT	1	RREVY	1	KTGDA	3	SMDVK	2	CVQST	2	VYIIF	8
		DLLIR	1	REVYD	1	DAISD	3	KHRPL	2	QSTHV	2	THARF	8
		EEKQR	1	EVYDF	1	NDSDT	3	LKCPP	2	TTIHD	2	DLYCY	8
		DKKQR	1	AFRDL	1	YLVSP	3	TSNIN	2	IHDII	2	RAHYN	8
		NIRGR	1	VYRDG	1	VSPLS	3	PYLHN	2	CKQQL	2	NIVTF	8
		TRRET	1	YRDGN	1	SDISG	3	NRLVV	2	YDFAF	2	IHDII	8
		TVYLP	2	DGNPY	1	LKAIC	3	TFPNE	2	FRDLC	2	CVYCK	8
		VSKVV	2	GNPYA	1	QSRAA	3	FPFDE	2	DLCIV	2	CKQQL	8
		LLAVG	2	YSKIS	1	EDSGY	3	PFDEN	2	YRDGN	2	ISEYR	8
		NNNKI	2	SKISE	1	LQVEG	3	PVYEL	2	AVCDK	2	CINCQ	8
		VPKVS	2	SEYRH	1	QYSGG	3	TWSRL	2	KCLKF	2	PNKFG	9
		EVGRG	2	YSLYG	1	GVSER	3	DKEND	2	KISEY	2	RLVWA	9
		PLGVG	2	SLYGT	1	SERHT	3	TFKCV	2	EYRHY	2	MDYKQ	9
		SGHPL	2	TTLEQ	1	NAKAA	3	KCVSG	2	SLYGT	2	LIGCK	9
		NKLDD	2	LEQQY	1	ELYGV	3	VSGQN	2	LYGTT	2	DCPPL	9

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
		LCLIG	2	EQQYN	1	LYGVS	3	NTNTL	2	QQYNK	2	FGAMD	9
		TNVAV	2	DLLIR	1	FSELV	3	METLC	2	KPLCD	2	MDFTT	9
		PLELI	2	RCINC	1	TPSIA	3	ETLCQ	2	PLCDL	2	FFYLR	9
		LINTV	2	CINCQ	1	KTLLQ	3	CQRLN	2	INCQK	2	TTYKN	9
		NKSEV	2	DKKQR	1	MVVLL	3	LNVCQ	2	CPEEK	2	KPKFT	9
		LFFYL	2	KKQRF	1	TIEKL	3	YENDS	2	KQRHL	2	LYKTC	9
		GAVGE	2	IRGRW	1	LLCVS	3	IDYWK	2	KQRFH	2	QAGTC	9
		AVGEN	2	SSRTR	1	LCVSP	3	KHMRL	2	FHNIR	2	GVFFG	9
		IKGSG	2	SRTRR	1	LRSTA	3	EMGFK	2	HNIRG	2	PTATD	9
		STANL	2	SLWLP	2	ALYWY	3	KHINH	2	GRWTG	2	TVTTH	9
		LCAAI	2	PSEAT	2	NISEV	3	VSKNK	2	CRSSR	2	NNPTF	9
		STSET	2	LPPVP	2	ISEVY	3	TIYNS	2	MSLWL	3	EEIPM	9
		YKNTN	2	PPVPV	2	GDTPE	3	SQYSN	2	LWLPS	3	DPAFV	9
		NTNFK	2	SRLLA	2	RQTVL	3	NEKWT	2	EATVY	3	YDNPA	9
		TNFKE	2	LGVGI	2	TFELS	3	KWTLQ	2	YVART	3	NPAYE	9
		KEYLR	2	VGISG	2	DSEIA	3	EVYLT	2	ARTNI	3	IAPDP	9
		STILE	2	GHPLL	2	VDDGG	3	YLTAP	2	HAGTS	3	IVALH	9
		GGTLE	2	LNKLD	2	LQGIP	3	IKKHG	2	KPNNN	3	IGAKV	9
		GTLED	2	TENAS	2	GAANT	3	VEVQF	2	PKVSG	3	HYYYD	9
		LKKYT	2	SAYAA	2	KFLQG	3	ICNTM	2	RVFRI	3	TSHAA	9
		VNLKE	2	ANAGV	2	LADAK	3	TMHYT	2	GRGQP	3	LYDIY	9
		LGKRK	2	AGVDN	2	DGNLV	3	LYYVH	2	NASAY	3	FGGAY	9
		STTAK	2	VIQDG	2	GNLVS	3	YYVHE	2	VDNRE	3	GAYNI	9
		RKKRK	2	IQDGD	2	RPLVQ	3	GIRTY	2	LIGCK	3	FYLHP	9
		KKRKL	2	MVDTG	2	PLVQL	3	IRTYF	2	VNPGD	3	HPSYY	9
		DIIPK	2	TTLQA	2	PPLLI	3	AEKYS	2	VIQDG	3	KTSNA	9
		KVEGK	2	GDSLF	2	TFPNE	3	EKYSK	2	TLQAN	3	RPFKS	9
		KTIAE	2	GAVGE	2	SFFSR	3	KYSKN	2	ANKSE	3	VSPMC	9
		IAEQI	2	NVPDD	2	WSRLS	3	VFSSN	2	NKSEV	3	QGVEF	9
		LGIGT	2	GSTAN	2	SRLSL	3	ATHTK	2	DYIKM	3	GAANT	9
		GGRTG	2	ANLAS	2	KAREM	3	DTGNP	2	IKMVS	3	DAKIG	9
		YIPLG	2	PTPSG	2	AREMG	3	SAPIL	2	FYLRR	3	IDDNL	9
		IVSLV	2	EEYDL	2	KNKAL	3	APILT	2	STANL	3	SNINA	9
		SLVEE	2	TLTAD	2	NKALQ	3	LTAFN	2	GSMVT	3	KNWKS	9
		IDAGA	2	TADVM	2	LTLET	3	TAFNS	2	DAQIF	3	ENDST	9
		DAGAP	2	FGLQP	2	QDVSL	3	NSNTT	2	AQIFN	3	ECAIY	9
		SGFSI	2	PPGGT	2	SLEVY	3	NTTPI	2	FKEYL	3	ETIYN	9
		AILDI	2	VTSQA	2	GYTVE	3	PIVHL	2	FQLCK	3	IYNSQ	9
		DINNT	2	EVNLK	2	VQFKD	3	IVHLK	2	KITLT	3	LYYVH	9
		FIVST	2	EKFSA	2	DDAEK	3	VHLKG	2	ADVMT	3	GIRTY	9
		IVSTN	2	LQAGL	2	EIIRQ	3	ANTLK	2	TLEDT	3	LCPTS	9
		LGLYS	2	GLKAK	2	KAVAL	3	LRYRF	2	PKEDP	3	CHTTK	9
		YSRTT	2	LKAKP	2	TKLLH	3	DSEWQ	2	YTFWE	3	NCNSN	9
		TKLIT	2	TPTTS	2	PILTA	3	VKIPK	2	EVNLK	3	SCCTE	9
		DNTLY	2	TSSTS	2	SSHKG	3	KIPKT	2	AGLKA	3	YIIFV	9
		YFSSN	2	RASAT	2	CNSNT	3	KTITV	2	KFTLG	3	FLIHT	9
		DNSIN	2	GKTIA	2	NTTPI	3	LSRCY	2	GKRKA	3	MHGDT	9
		RTRSG	2	TIAEQ	2	LYTAV	3	SRCYS	2	TAKRK	3	TPTLH	9
		GAKVH	2	VFFGG	2	TAVSS	3	STWPT	2	RASAT	3	AEPDR	9
		LSTID	2	FGGLG	2	ITVST	3	PSPWA	2	LYKTC	3	HVDIR	9
		AEEIE	2	LGIGT	2	ATKYP	3	APKKH	2	KTCKQ	3	HDIIL	9
		EIELQ	2	TGSGT	2	LGSTW	3	SSDQD	2	PPDII	3	SEYRH	9
		IELQT	2	IPLGT	2	PSPWA	3	PLSCC	2	YGSMG	3	INCQK	9
		STYTT	2	TATDT	2	HRRLS	3	ETQWT	2	YIPLG	3	KKQRF	9

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		SINNG	2	TDTLA	2	LSSDQ	3	TVLQS	2	TDTLA	3	YHAGT	10
		ADDFI	2	APVRP	2	LHLTA	3	TAHTK	2	DTLAP	3	DTQRL	10
		DDFIT	2	PPLTV	2	GLTVI	3	IVTLH	2	VDPVG	3	IQDGD	10
		TSLSG	2	PLTVD	2	NLDTA	3	CVLLC	2	VGPSD	3	VDTGF	10
		GYIPA	2	PSIVS	2	ASTTL	3	TYTSL	2	FIDAG	3	YPDYI	10
		YNIPL	2	LVEET	2	LLACF	3	YIPLF	2	HFTLS	3	EPYGD	10
		IPLVS	2	IDAGA	2	CLLIR	3	PLFLI	2	PMDTF	3	NRAGA	10
		VSGPD	2	GAPTS	2	SVSTY	3	THARF	2	TNPNT	3	KEYLR	10
		INITD	2	APTSV	2	SLIIL	3	TPTLH	2	SSTPI	3	ADLDQ	10
		RRKRL	2	SVPSI	2	LLLWI	3	TLHEY	2	TQQVK	3	FSITT	10
		EAVVE	2	VTTVT	2	HARFL	3	EYMLD	2	QVKVV	3	INIAP	10
		VEKKT	2	TTVTT	2	DEIDG	3	TDLYC	2	VDPAF	3	IDPAE	10
		EKKTG	2	TFTDP	2	IDGPA	3	YEQLN	2	DNTLY	3	FITDT	10
		ISDDE	2	PSVLQ	2	CPICS	3	EPDRA	2	TLYFS	3	DAGDF	10
		DENEN	2	SSTIS	2	LQTTI	3	NIVTF	2	SINIA	3	LYGVS	10
		NDYLT	2	PNTVT	2	REVYD	3	QSTHV	2	DPDFL	3	CIAAF	10
		VQVLK	2	NTVTS	2	EVYDF	3	HVDIR	2	IGNKQ	3	VYGDT	10
		KYLVS	2	STPIP	2	VYRDG	3	GIVCP	2	YYDLS	3	QMSMS	10
		PLSDI	2	LGLYS	2	DLLIR	3	QLCTE	2	STIDP	3	MSMSQ	10
		DNNIS	2	TQQVK	2	PEEKQ	3	LQTTI	2	IDPAE	3	DGGDW	10
		ISPRL	2	QVKVV	2	EEKQR	3	VYDFA	2	FITDT	3	VEFMS	10
		PRLKA	2	YEGID	2	SCCRS	3	DFAFR	2	SLSGY	3	MKFLQ	10
		RLKAI	2	NIAPD	2	CCRSS	3	FAFRD	2	ANTTI	3	MLDDA	10
		EDSGY	2	LDIVA	2	EYVAR	4	CIVYR	2	VSGPD	3	DVKHR	10
		TEVET	2	TIDPA	2	TSRLL	4	VYRDG	2	PSYYM	3	NDKNW	10
		SGGSG	2	IDPAE	2	LQYRV	4	DGNPY	2	RKRLP	3	FFSRT	10
		YSSGS	2	DPAEE	2	GRGQP	4	YAVCD	2	LPYFF	3	PTFKC	10
		GEGVS	2	ELQTI	2	GQPLG	4	AVCDK	2	YFFSD	3	ILTHY	10
		EGVSE	2	INNGL	2	GHPLL	4	VCDKC	2	PAGTN	3	NSQYS	10
		LTNIL	2	ADDFI	2	AGVDN	4	KFYSK	2	GTGCN	3	SLEVY	10
		TNILN	2	TSTTP	2	VNPGD	4	KISEY	2	ENEND	3	KKHGY	10
		LKTSN	2	STTPV	2	DMVDT	4	ISEYR	2	NENDS	3	ICNTM	10
		TSNAK	2	VPSTS	2	PYGDS	4	SEYRH	2	NDSDT	3	IIRQH	10
		AAMLA	2	STSLS	2	YGDSL	4	CYSLY	2	HALFT	3	IQRPR	10
		FKELY	2	SGYIP	2	LQRAQ	4	YNKPL	2	LFTAQ	3	HRDSV	10
		KELYG	2	NTTIP	2	TTRST	4	LIRCI	2	AKQHR	3	KSAIV	10
		FKSNK	2	TTIPF	2	STSET	4	CQKPL	2	QVLKR	3	QVKIP	10
		SNKST	2	FGGAY	2	FGLQP	4	HLDKK	2	DISGC	3	PKKHR	10
		IADSI	2	NIPLV	2	EDTYR	4	FHNIR	2	VDNNI	3	QWTVL	10
		ADSIK	2	LIPIV	2	SQAIA	4	WTGRC	2	NNISP	3	CLLIR	10
		SIKTL	2	IIADA	2	LKEKF	4	TGRCM	2	LFESE	3	HYNIV	10
		IKTLL	2	LRKRR	2	ADLDQ	4	GRCMS	2	SEDSG	3	CDSTL	10
		LLQQY	2	RKRLP	2	TSTTA	4	RCMSC	2	GYGNT	3	TTIHD	10
		STAAA	2	DPAGT	2	SAKRT	4	KVVST	3	GNTEV	3	AVCDK	10
		SEVYG	2	PAGTN	2	TIAEQ	4	EYVAR	3	TEVET	3	WLPSE	11
		DSEIA	2	EAVVE	2	AEQIL	4	GLQYR	3	TQQML	3	IYYHA	11
		SEIAY	2	VVEKK	2	VFFGG	4	RVFRI	3	RHETE	3	HPLLN	11
		EIAYK	2	VDFIV	2	LGIGT	4	LPDPN	3	GVSER	3	INTVI	11
		YKYAQ	2	DFIVN	2	IGTGS	4	NPDTQ	3	QTPLT	3	REQMF	11
		DTNSN	2	ETAHA	2	SGTGG	4	CVGVE	3	PLTNI	3	AVGEN	11
		FLTAL	2	AHALF	2	YIPLG	4	HPLLN	3	MLAKF	3	GSTAN	11
		CILLY	2	ALFTA	2	GTRPP	4	TQLCL	3	YGVSF	3	QIFNK	11
		AANTG	2	LFTAQ	2	LVEET	4	LCLIG	3	CIAAF	3	HGEEY	11
		LFGMS	2	YLVSP	2	GAPTS	4	PPIGE	3	FGLTP	3	IHSMN	11

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
		GMSLM	2	LVSPL	2	TFTDP	4	CTNVA	3	SIKTL	3	WNFGL	11
		YIDDN	2	RLKAI	2	ETGGH	4	PGDCP	3	ACSWG	3	LGRKF	11
		LDGNL	2	SGYGN	2	GHFTL	4	PLELI	3	KNRET	3	YKTCK	11
		LVQLK	2	VETQQ	2	RPVAR	4	IQDGD	3	IEPPK	3	TSFID	11
		INAGT	2	LQVEG	2	VTTPT	4	DMVDT	3	TGISN	3	SFIDA	11
		VYELN	2	VEGRH	2	PTKLI	4	DFTTL	3	ISNIS	3	ITYDN	11
		ELNDK	2	SSGSG	2	DNPAY	4	FTTLQ	3	EWIQR	3	NDNSI	11
		LNDKN	2	GGEGV	2	NDNSI	4	NKSEV	3	VLQHS	3	RIGNK	11
		SLHED	2	GEGVS	2	ALHRP	4	KMVSE	3	FELSQ	3	SGPDI	11
		GDSLP	2	ILNVL	2	TLRTR	4	SGSMV	3	YDNDI	3	PQYTI	11
		GQNTN	2	SIADS	2	KSIGA	4	SMVTS	3	TNSNA	3	TIIAD	11
		DKILT	2	IQSLA	2	SPTSI	4	PYWLQ	3	GVEFM	3	IADAG	11
		KAREM	2	TIEKL	2	DFITD	4	WLQRA	3	QGIPK	3	AGDFY	11
		SLEVY	2	LSKLL	2	TTPVP	4	GNQLF	3	FGMSL	3	IVNDN	11
		VYLTA	2	KLRST	2	TPVPS	4	NQLFV	3	GSVIC	3	SGCVD	11
		VTVVE	2	LRSTA	2	SVPST	4	TVVDT	3	VICFV	3	ETPCS	11
		EGIRT	2	RSTAA	2	YIPAN	4	RSTNM	3	NAGTD	3	MLAKF	11
		VFSSN	2	STAAA	2	IPANT	4	STNMS	3	GTDSR	3	DSIKT	11
		FSSNE	2	DSEIA	2	QAPSL	4	YLRHG	3	NRLVV	3	ALYWY	11
		TEETQ	2	QLADT	2	APSLI	4	EEYDL	3	LVVFT	3	YGDTP	11
		PILTA	2	ASAFL	2	YTIIA	4	ADVMT	3	VYELN	3	TPEWI	11
		LYTAV	2	AFLKS	2	GTNGE	4	SMNST	3	YELND	3	SFNDC	11
		YPLLK	2	YKRAE	2	VEAVV	4	ILEDW	3	FSRTW	3	DNDIV	11
		PLLKL	2	DDGGD	2	TGEDL	4	FGLQP	3	SGQNT	3	YAQLA	11
		KLLGS	2	NTGKS	2	VDFIV	4	TYRFV	3	METLC	3	DTNSN	11
		RLSSD	2	TGKSL	2	KRKYL	4	APKED	3	ETLCQ	3	FLRYQ	11
		TKDGL	2	PLADA	2	LVSPL	4	EDPLK	3	QDKIL	3	DNLRN	11
		LTVIV	2	ADAKI	2	ISPRL	4	EVNLK	3	LTHYE	3	YLHNR	11
		TTLLA	2	MLDDA	2	SPRLK	4	EKFSA	3	NDSTD	3	PNEFP	11
		LLLSV	2	DDATV	2	LFESE	4	KFLLQ	3	DYWKH	3	KENDG	11
		IVYII	2	NLRNA	2	EGVSE	4	KAKPK	3	MRLEC	3	NDGDS	11
		IFVYI	2	GNLVS	2	VLKTS	4	AGTCP	3	SKNKA	3	YKARE	11
		VYIPL	2	PLLIT	2	ADSIK	4	IIPKV	3	IELQL	3	GFKHI	11
		PLFLI	2	LVVFT	2	CGKNR	4	GRTGY	3	LTLET	3	GCIKK	11
		SEEED	2	FDENG	2	EVYGD	4	TGYIP	3	TIYNS	3	IKKHG	11
		DIILE	2	NGNPV	2	LQHSF	4	IPLGT	3	IYNSQ	3	FDGDI	11
		IILEC	2	WSRLS	2	IVDDS	4	DPVGP	3	VYLTA	3	VDYYG	11
		YSKIS	2	GDSLP	2	SNASA	4	SDPSI	3	QFDGD	3	CPTSV	11
		SKISE	2	SLPTF	2	DDGGD	4	DVSGF	3	DGDIC	3	NTTPI	11
		YGTTL	2	TLAVS	2	GGDWK	4	EIPMD	3	VVEGQ	3	TTPIV	11
		CDLLI	2	AVSKN	2	FLTAL	4	IVSTN	3	ILCPT	3	PWAPK	11
		LDKKQ	2	KALQA	2	LLYGA	4	STPIP	3	SSPEI	3	TAHTK	11
		NKILV	3	TLETI	2	GKSLF	4	SRTTQ	3	ANHPA	3	LLWIT	11
		VGISG	3	VSLEV	2	IGMLD	4	KLITY	3	ATHTK	3	FIVYI	11
		DTENA	3	EVYLT	2	LVSMD	4	YEGID	3	THTKA	3	IVYII	11
		VIQDG	3	TAPTG	2	INAGT	4	VDNTL	3	TEETQ	3	TDLYC	11
		QIFNK	3	GQVDY	2	AGTDS	4	SNDNS	3	TTIQR	3	STHVD	11
		KNTNF	3	HPAAT	2	FFSRT	4	NIAPD	3	KGRIN	3	DFAFR	11
		NSTIL	3	LGTEE	2	DGDSL	4	FLDIV	3	PIVHL	3	FAFRD	11
		GLKAK	3	TTKLL	2	METLC	4	LHRPA	3	DANTL	3	VCDKC	11
		AKRKK	3	TLKCL	2	LCQRL	4	TRSGK	3	LRYRF	3	QKPLC	11
		EGKTI	3	TLYTA	2	QAIEL	4	GKSIG	3	RFKKH	3	STDEY	12
		GLGIG	3	SAIVT	2	DVSLE	4	GAKVH	3	VSSTW	3	KQTQL	12
		GTGSG	3	TITVS	2	EEASV	4	GLYDI	3	KSAIV	3	QLCLI	12

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
		GSGTG	3	DPAAA	2	VHEGI	4	DIYAD	3	IPKTI	3	VPLDI	12
		IPLGT	3	PAAAT	2	NEVSS	4	DFITD	3	ITVST	3	LFFYL	12
		TSFID	3	PLLKL	2	RSEPD	4	TDTST	3	TGFMS	3	EQMFV	12
		LDINN	3	KLLGS	2	DSAPI	4	SGYIP	3	GFMSI	3	TNMSL	12
		LSSST	3	LSSDQ	2	TAFNS	4	NTTIP	3	SRCYS	3	WEVNL	12
		YEGID	3	QTPET	2	LRYRF	4	FGGAY	3	LGSTW	3	PKVEG	12
		FLDIV	3	TPETP	2	KSAIV	4	ITDQA	3	PIPKP	3	PSIVS	12
		SGKSI	3	PETPA	2	SAIVT	4	TDQAP	3	NLDTA	3	DINNT	12
		YDLST	3	ATPLS	2	QVKIP	4	IPIVP	3	CFLLC	3	NSINI	12
		KRRKR	3	NLDTA	2	MAILK	4	TIIAD	3	CLLIR	3	YVEAV	12
		AVVEK	3	TASTT	2	PIPKP	4	GDFYL	3	LLIRP	3	LFTAQ	12
		LVDFI	3	VLLCV	2	PETPA	4	LPYFF	3	LIHTH	3	ISGCV	12
		LSDIS	3	RPLLL	2	ETPAT	4	FFSDV	3	HTHAR	3	IEKQS	12
		VDNNI	3	PLLLS	2	DGLTV	4	FYVEA	3	HGDTP	3	YGNTE	12
		ILNVL	3	LLLSV	2	STTLL	4	VVEKK	3	GDTPT	3	SERHT	12
		VLKTS	3	LLSVS	2	IHTHA	4	EDLVD	3	LHEYM	3	LQQYC	12
		AFGLT	3	TYTSL	2	LDLQP	4	DLVDF	3	EQLND	3	KCGKN	12
		EKLLS	3	IILVL	2	EDEID	4	VDFIV	3	MGTLG	3	LCVSP	12
		GISNI	3	ILVLL	2	AEPDR	4	LFTAQ	3	LGIVC	3	NDCTF	12
		AKIVK	3	ITAAS	2	AHYNI	4	VQVLK	3	CPICS	3	NDIVD	12
		GKSLF	3	PLFLI	2	PICSQ	4	PLSDI	3	QKRTA	3	SEIAY	12
		PPLLI	3	GDTPT	2	MFQDP	4	DISGC	3	AMFQD	3	IVKDC	12
		SKNKA	3	LDLQP	2	AFRDL	4	GCVDN	3	QERPR	3	RCDRV	12
		KNKAL	3	EDEID	2	TLEQQ	4	DNNIS	3	KLPQL	3	IVMFL	12
		TLETI	3	DEIDG	2	CRSSR	4	YGNTE	3	QLCTE	3	GIPKK	12
		ETIYN	3	STLRL	2	RTRRE	4	NTEVE	3	CTELQ	3	HRPLV	12
		IKKHG	3	LEDLL	2	YLPPV	5	ETQQM	3	DIILE	3	GLYYV	12
		YTVEV	3	LRREV	2	VVSTD	5	MLQVE	3	ILECV	3	DDAEK	12
		EKYSK	3	YGTTL	2	LVPKV	5	TETPC	3	VYRDG	3	RYRFK	12
		YSKNK	3	LPSEA	3	YNPDT	5	VSERH	3	LKFYS	3	KLSRC	12
		AGGQV	3	VVSTD	3	GVEVG	5	SERHT	3	KFYSK	3	QRFHN	12
		ILTAF	3	RLLAV	3	DTENA	5	ERHTI	3	TTLEQ	3	RWTGR	12
		YTAVS	3	ASAYA	3	ANAGV	5	TICQT	3	LEQQY	3	SCCRS	12
		LSQVK	3	TGFGA	3	LELIN	5	PLTNI	3	PLCPE	3	TRRET	12
		IPKTI	3	FTTLQ	3	SDAQI	5	NILNV	3	LCPEE	3	NNNKI	13
		ITVST	3	VTSDA	3	HTPPA	5	KSNKS	3	PEEKQ	3	AGVDN	13
		IILVL	3	VTVVD	3	EKFSA	5	FGLTP	3	MSCCR	3	PPIGE	13
		TAASA	3	LRHGE	3	QAGLK	5	IKTLL	3	VSKVV	4	GFGAM	13
		VYIIF	3	ATPTT	3	GLKAK	5	LHIQS	3	TDEYV	4	MVTSD	13
		EDEID	3	STSTT	3	EGKTI	5	CGKNR	3	VARTN	4	LCKIT	13
		IRTLE	3	TSTTA	3	GVFFG	5	ISNIS	3	IYYHA	4	SMNST	13
		KFYSK	3	EGKTI	3	FFGGL	5	QHSFN	3	GHPYF	4	CKQAG	13
		LGVGI	4	FFGGL	3	FGGLG	5	DIVDD	3	RIHLP	4	PTFTD	13
		ELINT	4	GIGTG	3	IPLGT	5	TNSNA	3	PDPNK	4	NYEEI	13
		LKEKF	4	IVSLV	3	IVSLV	5	CATMC	3	FGFPD	4	IPMDT	13
		FGGLG	4	TVTSS	3	AGAPT	5	EKKQM	3	RGQPL	4	QQVKV	13
		GGLGI	4	VTSST	3	TSVPS	5	YRCDR	3	HPLLN	4	NGLYD	13
		SIVSL	4	TPIPG	3	TTVTT	5	DGGDW	3	DTENA	4	ITDTS	13
		NSINI	4	FVTTP	3	PTPAE	5	WKQIV	3	NVAVN	4	NENDS	13
		KSIGA	4	GIDVD	3	TLSSS	5	ILLYG	3	LELIN	4	ICIEK	13
		EEIEL	4	DIVAL	3	VSTNP	5	YGAAN	3	TVIQD	4	TQQML	13
		SLSGY	4	DTSTT	3	NTVTS	5	ANTGK	3	GDMVD	4	TSNAK	13
		IPINI	4	LSGYI	3	VTSST	5	GKSLF	3	DFTTL	4	YKYAQ	13
		GGSGG	4	PIVPG	3	SSTPI	5	MKFLQ	3	LQANK	4	ICFVN	13

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
		SSGSG	4	IVPGS	3	STPIP	5	LQGSV	3	SLFFY	4	VFTFP	13
		LLSKL	4	VEAVV	3	RLGLY	5	CFVNS	3	GSTAN	4	PVYEL	13
		LSKLL	4	KTGDA	3	TYDNP	5	VNSKS	3	YWLQR	4	NVCQD	13
		ISNIS	4	DSDTG	3	RTGIR	5	WLQPL	3	TRSTN	4	LECAI	13
		IVMFL	4	SFSEL	3	RSGKS	5	ADAKI	3	TNMSL	4	YYKAR	13
		NTGKS	4	KTLLQ	3	IDPAE	5	MLDDA	3	MSLCA	4	KAREM	13
		DENGN	4	LLLVR	3	ANTTI	5	ALDGN	3	SETTY	4	LETIY	13
		LLKLL	4	AAALY	3	LIPIV	5	NAGTD	3	RHGEE	4	KWTLQ	13
		LIILV	4	TVLQH	3	IIADA	5	VVFTF	3	SMNST	4	QFDGD	13
		ILVLL	4	FLTAL	3	MLRKR	5	FDENG	3	NSTIL	4	FVQFK	13
		LVLLL	4	LRNAL	3	LRKRR	5	ENGNP	3	PPGGT	4	YSKNK	13
		EEDEI	4	INAGT	3	KRRKR	5	HEDED	3	SQAIA	4	HAGGQ	13
		LEDLL	4	DKILT	3	SDVSL	5	TLCQR	3	LKEKF	4	NHPAA	13
		GVGIS	5	LTAPT	3	YLTQA	5	NHQVV	3	FSADL	4	QTTIQ	13
		GKSIG	5	ASVTV	3	QAETE	5	WTLQD	3	LDQFP	4	HTTKL	13
		LNVLK	5	SVTVV	3	ETAHA	5	VYLTA	3	TLGKR	4	WPTTP	13
		VLLLV	5	GGQVI	3	AVQVL	5	VQFDG	3	AKRTK	4	APKKH	13
		ETIEK	5	LYTAV	3	AMLAK	5	VDYYG	3	VEGKT	4	TPLSC	13
		KLLSK	5	AVSST	3	GVSFS	5	YYGLY	3	GKTIA	4	LFLIH	13
		NAGTD	5	LSVST	3	LVRPF	5	VILCP	3	IAEQI	4	HARFL	13
		KYSKN	5	LVLLL	3	GMVVL	5	HLANH	3	LQYGS	4	EYMLD	13
		AVALG	5	TAASA	3	LSKLL	5	NHPAA	3	GYIPL	4	CSQKP	13
		IVTLT	5	DIRTL	3	QLADT	5	HTKAV	3	TSFID	4	QTTIH	13
		TLEDL	5	VSTDE	4	SFLTA	5	TTIQR	3	SITTS	4	KCLKF	13
		NNKIL	6	VGVEV	4	TALKR	5	PDTGN	3	PAILD	4	KFYSK	13
		LLNKL	6	YGDSL	4	LKRFL	5	HTTKL	3	INNTV	4	NIRGR	13
		LNKLD	6	AGLKA	4	NLRNA	5	HRDSV	3	TFTDP	4	YRVFR	14
		ILDIN	6	GLGIG	4	NALDG	5	FNSSH	3	FTDPS	4	FRIHL	14
		NILNV	6	GTGSG	4	SNINA	5	KGRIN	3	PGSRP	4	PDTQR	14
		KFKEL	6	ATDTL	4	EDKEN	5	LKCLR	3	RLGLY	4	VGRGQ	14
		SNISE	6	VARLG	4	TDLRD	5	CLRYR	3	GLYSR	4	YAANA	14
		NISEV	6	VKVVD	4	VVPTL	5	KSAIV	3	LYSRT	4	DFTTL	14
		LKSNS	6	AVVEK	4	ALQAI	5	AIVTL	3	RTTQQ	4	CTSIC	14
		KIVKD	6	GSGGG	4	TLQDV	5	VTLTY	3	QQVKV	4	FVRHL	14
		SLIIL	7	AAMLA	4	VSLEV	5	EWQRD	3	TPTKL	4	NVPDD	14
		GGEGV	9	VVLLL	4	VYLTA	5	QRDQF	3	NDNSI	4	TSDAQ	14
		IEKLL	9	VLLLV	4	TAPTG	5	MAILK	3	NIAPD	4	ETTYK	14
		TIEKL	10	LYGAA	4	VVEGQ	5	AILKW	3	LHRPA	4	YKNTN	14
		NLKEK	11	TDLRD	4	EGIRT	5	LKWKL	3	RYSRI	4	TYRFV	14
				KDDAE	4	RPRSE	5	WKLSR	3	KQTLR	4	DLDQF	14
				KAVAL	4	KGDAN	5	KLSRC	3	YDLST	4	PPDII	14
				VALGT	4	SSTWH	5	RCYSS	3	LQTIT	4	SMGVF	14
				SVDSA	4	SEWQR	5	PIPKP	3	TTSHA	4	TGGRT	14
				AAATK	4	AATKY	5	IPKPS	3	ADDFI	4	PAYEG	14
				TPATP	4	KLLGS	5	QDQSQ	3	IPANT	4	RRTGI	14
				STTLL	4	WPTTP	5	HTKDG	3	FGGAY	4	GNKQT	14
				AASAF	4	TTPPR	5	LCFCV	3	SLIPI	4	TTSHA	14
				DSTLR	4	TPPRP	5	VSTYT	3	GSPQY	4	DDFIT	14
				TLEDL	4	RLSSD	5	TSLII	3	GDFYL	4	YIPAN	14
				QKRTA	4	SLHLT	5	AFRCF	3	YLHPS	4	IPINI	14
				SEATV	5	IILVL	5	FRCFI	3	DPAGT	4	VNDND	14
				LLAVG	5	ILVLL	5	QLNDS	3	TNGEE	4	YLTQA	14
				AANAG	5	PLFLI	5	CDSTL	3	DTGED	4	EAKQH	14
				TVVDT	5	DTPTL	5	TLRLC	3	EDLVD	4	VEGRH	14

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
				LTADV	5	STLRL	5	IRTLE	3	DLVDF	4	HETET	14
				TSHAA	5	HVDIR	5	VCPIC	3	FIVND	4	SIKTL	14
				TAQEA	5	RTLED	5	QERPR	3	VNDND	4	KLLCV	14
				LLKLL	5	LGIVC	5	PRKLP	3	QHRDA	4	AALYW	14
				TTLLA	5	GRWTG	5	VYCKQ	3	SGCVD	4	IVDDS	14
				GGSGG	6	PPVPV	6	IVYRD	3	KQSRA	4	QAKIV	14
				AQLAD	6	VSKVV	6	GNPYA	3	DSGYG	4	SQWIK	14
				LDDAT	6	LAVGH	6	LYGTT	3	MLQVE	4	SVICF	14
				RAGAV	7	KLDDT	6	DKKQR	3	TICQT	4	SHFWL	14
				GGLGI	7	LDDTE	6	RFHNI	3	CQTPL	4	TSNIN	14
				ARLGL	8	YAANA	6	RWTGR	3	ILNVL	4	VVFTF	14
				VSLAA	8	INTVI	6	SCCRS	3	FKELY	4	EFPFD	14
				AVALG	8	NTVIQ	6	VSKVV	4	LYGVS	4	FKCVS	14
				IAAFG	10	LRREQ	6	SKVVS	4	LVRPF	4	THYEN	14
				AGAVG	11	TPSGS	6	VSTDE	4	KSNKS	4	AIELQ	14
				TAAAL	14	AAIST	6	TDEYV	4	CLYLH	4	TTIQR	14
						PPPGG	6	PDTSF	4	LYLHI	4	SHKGR	14
						LDQFP	6	QRLVW	4	CSWGM	4	KGRIN	14
						RSAKR	6	RLVWA	4	VYGDT	4	LSRCY	14
						PLGTR	6	PLLNK	4	TVLQH	4	IPKPS	14
						RPPTA	6	KLDDT	4	NDIVD	4	LWITA	14
						PPTAT	6	LDDTE	4	KYAQL	4	HEYML	14
						TDTLA	6	AYAAN	4	QLADT	4	LCVQS	14
						TLAPV	6	QLCLI	4	NSNAS	4	THVDI	14
						PVRPP	6	LQANK	4	KSNSQ	4	VDIRT	14
						PTSVP	6	VPLDI	4	SQAKI	4	YSKIS	14
						VSGFS	6	LDICT	4	QAKIV	4	GRWTG	14
						TSTDT	6	DICTS	4	KIVKD	4	ATVYL	15
						TPAIL	6	MVSEP	4	YKRAE	4	IHLPD	15
						QPPTP	6	YGDSL	4	KQIVM	4	FYNPD	15
						FTLSS	6	MFVRH	4	CILLY	4	DICTS	15
						GSRPV	6	FVRHL	4	KSLFG	4	IKMVS	15
						LRTRS	6	VGENV	4	LMKFL	4	PYGDS	15
						TIDPA	6	NVPDD	4	MKFLQ	4	GDSLF	15
						IELQT	6	ASSNY	4	NSKSH	4	PDDLY	15
						AASPT	6	QLFVT	4	QPLAD	4	SGSMV	15
						TDTST	6	FKEYL	4	NLRNA	4	VTSDA	15
						IPIVP	6	EYDLQ	4	VSMDV	4	WLQRA	15
						ISDDE	6	FIFQL	4	SMDVK	4	FKEYL	15
						LTQAE	6	TLEDT	4	RPLVQ	4	IFQLC	15
						VQVLK	6	LEDTY	4	PLLIT	4	AKPKF	15
						PRLKA	6	YRFVT	4	LLITS	4	KFTLG	15
						DSGYG	6	FVTSQ	4	SNINA	4	HKRSA	15
						LLLVR	6	TSQAI	4	LHNRL	4	GGHFT	15
						IEKLL	6	QKHTP	4	NEFPF	4	TISTH	15
						AAALY	6	PLKKY	4	GNPVY	4	PAFVT	15
						ASAFL	6	NLKEK	4	EDKEN	4	KQTLR	15
						LTALK	6	GRKFL	4	LCQRL	4	YDLST	15
						RLVVF	6	HKRSA	4	RLECA	4	TDQAP	15
						SLPTF	6	KRTKR	4	REMGF	4	GSPQY	15
						STDLR	6	CPPDI	4	AIELQ	4	QYTII	15
						LQLTL	6	PKVEG	4	APTGC	4	ENDSD	15
						LEVYL	6	GIGTG	4	IKKHG	4	HALFT	15
						LTAPT	6	FIDAG	4	HGYTV	4	NISPR	15

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
						WEVHA	6	SIPPD	4	VEVQF	4	CIEKQ	15
						ALGTE	6	ITTST	4	EVQFD	4	TPCSQ	15
						PRSEP	6	TSTDT	4	VQFDG	4	LHIQS	15
						EPDTG	6	TDTTP	4	ICEEA	4	GKNRE	15
						RDSVD	6	DTTPA	4	EGQVD	4	FLQGI	15
						SNTTP	6	TTPAI	4	AGGQV	4	FPNEF	15
						VSSTW	6	NNTVT	4	EIIRQ	4	SRTWS	15
						AAATK	6	PTFTD	4	HPAAT	4	WSRLS	15
						LLGST	6	STNPN	4	VALGT	4	HINHQ	15
						ATPLS	6	PNTVT	4	ETQTT	4	SNEKW	15
						VLLCV	6	RLGLY	4	EPDTG	4	YTVEV	15
						LIRPL	6	GLYSR	4	DTGNP	4	GQVDY	15
						LIILV	6	TTQQV	4	HRDSV	4	DTGNP	15
						LEDLL	6	LYFSS	4	PILTA	4	TLYTA	15
						LLMGT	6	FSSND	4	FNSSH	4	LYTAV	15
						FQDPQ	6	IAPDP	4	NTLKC	4	VSSTW	15
						YGTTL	6	DPDFL	4	DSEWQ	4	TWPTT	15
						VSTDE	7	IVALH	4	VKIPK	4	PLSCC	15
						TQRLV	7	RRTGI	4	VSTGF	4	CVLLC	15
						VGRGQ	7	LSTID	4	KLSRC	4	YIPLF	15
						RGQPL	7	STIDP	4	IPKPS	4	YMLDL	15
						ASAYA	7	IELQT	4	PKPSP	4	YEQLN	15
						GKGSP	7	ELQTI	4	AHTKD	4	YNIVT	15
						VAVNP	7	QTITP	4	TKDGL	4	CVQST	15
						PTPSG	7	IPFGG	4	TVIVT	4	MFQDP	15
						QRAQG	7	NIPLV	4	SVSTY	4	RDGNP	15
						VTVVD	7	SLIPI	4	VSTYT	4	RRETQ	15
						RKATP	7	PIVPG	4	TSLII	4	VARTN	16
						TPTTS	7	IADAG	4	LIILV	4	HAGTS	16
						GGRTG	7	YLHPS	4	LLWIT	4	NPDTQ	16
						APVRP	7	KKTGD	4	YIPLF	4	CVGVE	16
						PLTVD	7	TGDAI	4	PLFLI	4	GDMVD	16
						APTSV	7	DAISD	4	HARFL	4	SDAQI	16
						SSSTI	7	DENEN	4	ARFLI	4	RAQGH	16
						STIST	7	EAKQH	4	RFLIT	4	GNQLF	16
						PALTS	7	SGCVD	4	TPTLH	4	EDTYR	16
						ALTSR	7	QQMLQ	4	IDGPA	4	STTAK	16
						SHAAS	7	VEGRH	4	NIVTF	4	ATDTL	16
						PIVPG	7	QYSSG	4	KCDST	4	FIVST	16
						DPAGT	7	SNAKA	4	TLRLC	4	VVDPA	16
						NISPR	7	AMLAK	4	VDIRT	4	GIDVD	16
						RAAKR	7	SNKST	4	IRTLE	4	LYFSS	16
						AKAAM	7	KSTCC	4	EDLLM	4	KVHYY	16
						AAFGL	7	CIAAF	4	GTLGI	4	IELQT	16
						RVDDG	7	LVRYK	4	TLGIV	4	ENEND	16
						LVVFT	7	FELSQ	4	ERPRK	4	RKYLV	16
						EVSSP	7	DDSEI	4	RKLPQ	4	DNNIS	16
						SSPEI	7	DSEIA	4	LCTEL	4	SGYGN	16
						SVDSA	7	YAQLA	4	RREVY	4	VETQQ	16
						SAPIL	7	ADTNS	4	RDLCI	4	QYSGG	16
						AIVTL	7	NASAF	4	DGNPY	4	LVRYK	16
						LKLLG	7	AKIVK	4	PYAVC	4	YDNDI	16
						LSVST	7	KRFLQ	4	VCDKC	4	KYAQL	16
						ITAAS	7	GMSLM	4	RHYCY	4	YRCDR	16

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
						QAEPD	7	QGSVI	4	YSLYG	4	DRVDD	16
						RDGNP	7	GSVIC	4	LDKKQ	4	GMLDD	16
						LPPVP	8	ATVPC	4	KILVP	5	RLVVF	16
						PLGVG	8	IDDNL	4	ILVPK	5	YELND	16
						GVGIS	8	DNLRN	4	KVSGL	5	EKWTL	16
						DGDMV	8	VSMDV	4	DTQRL	5	KVWEV	16
						GAVGE	8	HRPLV	4	ACVGV	5	VHLKG	16
						GSTAN	8	KCPPL	4	LGVGI	5	TGHNV	16
						ANLAS	8	AGTDS	4	LNKLD	5	SDQDQ	16
						CAAIS	8	LHNRL	4	DDTEN	5	STYTS	16
						ASATQ	8	LVVFT	4	GVDNR	5	VYIPL	16
						GTGSG	8	DENGN	4	TQLCL	5	RDLCI	16
						PPLTV	8	QRLNV	4	DGDMV	5	EYRHY	16
						GFSIT	8	NDSTD	4	MVDTG	5	YNKPL	16
						TVTTV	8	HQVVP	4	TGFGA	5	RHLDK	16
						LHRPA	8	SKNKA	4	PYGDS	5	SSNYF	17
						SGKSI	8	KNKAL	4	DSLFF	5	NNGIC	17
						STTPV	8	QLTLE	4	LFFYL	5	FVTVV	17
						ALFTA	8	APTGC	4	RREQM	5	ADVMT	17
						SRAAK	8	PTGCI	4	KGSGS	5	IACQK	17
						VEGRH	8	YTVEV	4	TANLA	5	RHKRS	17
						QTVLQ	8	FDGDI	4	PTPSG	5	TKRAS	17
						QPLAD	8	TVVEG	4	WLQRA	5	VTTHN	17
						PVYEL	8	VVEGQ	4	GNQLF	5	YEEIP	17
						LQAIE	8	GLYYV	4	DTTRS	5	TQQVK	17
						HAGGQ	8	QFKDD	4	EEYDL	5	LITYD	17
						SEPDT	8	HAGGQ	4	FVTSQ	5	DNPAY	17
						APILT	8	SSPEI	4	APKED	5	TGIRY	17
						LKGDA	8	PEIIR	4	KEKFS	5	DFYLH	17
						PTTPP	8	IRQHL	4	PLGRK	5	TNGEE	17
						LTAHT	8	TKLLH	4	LGRKF	5	DAISD	17
						RPLLL	8	FKKHC	4	RKFLL	5	NDSDT	17
						PLLLS	8	DQFLS	4	KFLLQ	5	DNDYL	17
						RKLPQ	8	PKTIT	4	LKAKP	5	AHALF	17
						LKFYS	8	KLLGS	4	CPPDI	5	KRRLF	17
						GTSRL	9	KKHRR	4	IIPKV	5	TPSIA	17
						EVGRG	9	KDGLT	4	PKVEG	5	YCLYL	17
						QPLGV	9	TVIVT	4	RPPLT	5	TVLQH	17
						AVNPG	9	LLCFC	4	TVDPV	5	DCTFE	17
						YLRRE	9	FCVLL	4	PSDPS	5	NAGTD	17
						STANL	9	CLLIR	4	FSITT	5	NRLVV	17
						PSGSM	9	YTSLI	4	TVTTH	5	VYLTA	17
						LCAAI	9	WITAA	4	PAETG	5	FSSNE	17
						EYLRH	9	FVYIP	4	GHFTL	5	INCNS	17
						GLGIG	9	VYIPL	4	NPNTV	5	PIVHL	17
						TATDT	9	PETTD	4	TPIPG	5	KGDAN	17
						IDAGA	9	DEIDG	4	PIPGS	5	YRFKK	17
						DINNT	9	RLCVQ	4	SRTTQ	5	NLDTA	17
						TVTSS	9	STHVD	4	DPAFV	5	PTLHE	17
						LDIVA	9	DIRTL	4	TTPTK	5	LLIRC	17
						RTRSG	9	LLMGT	4	AYEGI	5	MSLWL	18
						HAASP	9	LCTEL	4	LYFSS	5	CLIGC	18
						ASPTS	9	RDLCI	4	FSSND	5	VIQDG	18
						PLVSG	9	KPLCP	4	IAPDP	5	PLDIC	18

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
						VPGSP	9	LDKKQ	4	PDFLD	5	LFNRA	18
						AKRRL	9	QRFHN	4	IVALH	5	YFPTP	18
						SGGSG	9	YRVFR	5	PALTS	5	SETTY	18
						SGSGG	9	IHLPD	5	IRYSR	5	EDPLK	18
						FGLTP	9	FGFPD	5	YSRIG	5	DQFPL	18
						AALYW	9	GVEVG	5	RTRSG	5	QLYKT	18
						MLDDA	9	DTENA	5	KSIGA	5	IAEQI	18
						LAVSK	9	NAGVD	5	SIGAK	5	RTGYI	18
						VTVVE	9	AGVDN	5	LSTID	5	PDVSG	18
						LLIRP	9	VDTGF	5	PSTYT	5	ETGGH	18
						IRPLL	9	QANKS	5	TTTSH	5	MDTFI	18
						AASAF	9	ANKSE	5	PTSIN	5	TLYFS	18
						DSTLR	9	PLDIC	5	AYNIP	5	ANTTI	18
						LLRRE	9	ENVPD	5	LIPIV	5	FYVEA	18
						AGTSR	10	VPDDL	5	IVPGS	5	TGEDL	18
						VGISG	10	YIKGS	5	AGDFY	5	DYLTQ	18
						NVAVN	10	PSGSM	5	FSDVS	5	HRDAV	18
						TANLA	10	SDAQI	5	TGDAI	5	TICQT	18
						ATPTT	10	MSLCA	5	DAISD	5	PEWIQ	18
						KRASA	10	AAIST	5	GEDLV	5	EKKQM	18
						GGLGI	10	AISTS	5	VDFIV	5	LFGMS	18
						TGSGT	10	SQAIA	5	DFIVN	5	HEDED	18
						SSTIS	10	VNLKE	5	TQAET	5	SGQNT	18
						SRRTG	10	LKEKF	5	FTAQE	5	IELQL	18
						TRSGK	10	KEKFS	5	DNNIS	5	YGLYY	18
						TSTTP	10	ADLDQ	5	KRRLF	5	KYSKN	18
						VPSTS	10	LKAKP	5	FESED	5	SNEVS	18
						NIPLV	10	FTLGK	5	VETQQ	5	GDANT	18
						EAVVE	10	TAKRK	5	EGRHE	5	KCLRY	18
						IAAFG	10	KQAGT	5	AMLAK	5	AILKW	18
						GLTPS	10	LQYGS	5	ELYGV	5	LHLTA	18
						AANTG	10	GVFFG	5	PSIAD	5	ARFLI	18
						LQPLA	10	VFFGG	5	HIQSL	5	HGDTP	18
						PLLIT	10	VPSIP	5	GMVVL	5	DLLMG	18
						PTLAV	10	IPPDV	5	MVVLL	5	RHYCY	18
						TVVEG	10	IPGSR	5	LVRYK	5	LYGTT	18
						TPATP	10	RTTQQ	5	GKNRE	5	VYLPP	19
						PATPL	10	KVVDP	5	EPPKL	5	YLPPV	19
						TTLLA	10	SSNDN	5	KTGIS	5	AVGHP	19
						MLDLQ	10	APDPD	5	NISEV	5	PKVSG	19
						RPRKL	10	PDFLD	5	ISEVY	5	LQYRV	19
						GTTLE	10	LDIVA	5	SEVYG	5	RIHLP	19
						VGVEV	11	RYSRI	5	EVYGD	5	ENASA	19
						SGSTA	11	YYDLS	5	LQHSF	5	SAYAA	19
						SLCAA	11	DLSTI	5	ELSQM	5	AVNPG	19
						AISTS	11	STYTT	5	IVDDS	5	CPPLE	19
						PPGGT	11	TTTSH	5	FLKSN	5	NKSEV	19
						PPTPA	11	SLSGY	5	RAEKK	5	SLFFY	19
						LSSST	11	IPLVS	5	FMSFL	5	TTRST	19
						SRPVA	11	PAGTN	5	SLFGM	5	DLQFI	19
						PSTSL	11	EGTGC	5	CPPLL	5	KKYTF	19
						DLVDF	11	VEKKT	5	VVFTF	5	TQLYK	19
						AAKRR	11	ENDSD	5	FDENG	5	KTCKQ	19
						SLACS	11	QHRDA	5	HEDED	5	INNTV	19

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
						LDDAT	11	KRRLF	5	DKEND	5	TFIVS	19
						GDSLP	11	ETPCS	5	CQRLN	5	GAKVH	19
						ASVTV	11	SQYSS	5	QRLNV	5	AKVHY	19
						LDTAS	11	LNVLK	5	ENDST	5	STYTT	19
						LLSVS	11	KTSNA	5	KAREM	5	IPFGG	19
						LQAGL	12	KFKEL	5	AREMG	5	PINIT	19
						PTTSS	12	LYGVS	5	HQVVP	5	PAGTN	19
						VVDPA	12	PSIAD	5	VSKNK	5	AISDD	19
						ITPST	12	MVVLL	5	KNKAL	5	TQAET	19
						ADPAG	12	SNISE	5	LQDVS	5	DISGC	19
						YAQLA	12	YGDTP	5	DAEKY	5	NRETI	19
						LRREV	12	QRQTV	5	EVHAG	5	LADTN	19
						RSSRT	12	LSQMV	5	VILCP	5	NSKSH	19
						DAGAP	13	QGVEF	5	SSNEV	5	WLQPL	19
						DPAFV	13	GNLVS	5	LANHP	5	KCVSG	19
						PSVPS	13	ELNDK	5	NHPAA	5	CQRLN	19
						RRLFE	13	CVSGQ	5	ALGTE	5	RINCN	19
						VLLLV	13	LCQRL	5	EETQT	5	CLRYR	19
						RSTAA	13	KAREM	5	APILT	5	VKHKS	19
						LLITS	13	VVPTL	5	ANTLK	5	TYDSE	19
						LLKLL	13	IELQL	5	TLYTA	5	EWQRD	19
						TASTT	13	SLEVY	5	FLSQV	5	TTDLY	19
						GPAGQ	13	TVEVQ	5	WKLSR	5	LMGTL	19
						AGQAE	13	EGQVD	5	LSRCY	5	TIHDI	19
						GTLGI	13	GGQVI	5	KKHRR	5	NKFGF	20
						ISTSE	14	CPTSV	5	LSSDQ	5	TSFYN	20
						STSTT	14	EIIRQ	5	VCLLI	5	ISGHP	20
						PAILD	14	RQHLA	5	TYTSL	5	DLYIK	20
						PGSRP	14	ANHPA	5	IILVL	5	TNFKE	20
						TSLSG	14	TIQRP	5	LFLIH	5	GEEYD	20
						IADAG	14	ILTAF	5	ETTDL	5	DVSGF	20
						VSLAA	14	LYTAV	5	TTDLY	5	NPNTV	20
						DPAAA	14	SAIVT	5	NDSSE	5	RPALT	20
						LLLSV	14	TLTYD	5	CDSTL	5	RTGIR	20
						LLNKL	15	LGSTW	5	THVDI	5	QTITP	20
						RPPLT	15	PPRPI	5	ELQTT	5	YTTTS	20
						LTSRR	15	SPWAP	5	AFRDL	5	SINNG	20
						RDAVQ	15	LSSDQ	5	IVYRD	5	TTIPF	20
						DDATV	15	DGLTV	5	YGTTL	5	NDYLT	20
						RPALT	16	GLTVI	5	KVVST	6	NTEVE	20
						PLADA	16	LLCVC	5	NNNKI	6	GRHET	20
						RNALD	16	LCVCL	5	HLPDP	6	NILNV	20
						QLLRR	16	VCLLI	5	LPDPN	6	SNAKA	20
						NRAGA	17	LLIRP	5	CVGVE	6	VICFV	20
						TPPAP	17	LIILV	5	EVGRG	6	QPLAD	20
						TTSST	17	IILVL	5	GVGIS	6	YENDS	20
						VPTLA	17	LLLWI	5	ISGHP	6	EMGFK	20
						TLAVS	17	ITAAS	5	SGHPL	6	SQYSN	20
						DGPAG	17	RFLIT	5	NAGVD	6	YLTAP	20
						GQAEP	17	LDLQP	5	WGKGS	6	CEEAS	20
						TLGIV	17	EQLND	5	VAVNP	6	GGQVI	20
						QQLLR	17	QAEPD	5	TTLQA	6	TIQRP	20
						AGLKA	18	PDRAH	5	NRAGA	6	HKGRI	20
						DIVAL	18	DLLMG	5	VPDDL	6	IVHLK	20

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
						LVLLL	18	LMGTL	5	SDAQI	6	HLKGD	20
						LAPVR	19	LECVY	5	EYLRH	6	LRYRF	20
						AQLAD	19	PLCPE	5	STILE	6	SAIVT	20
						AVSST	19	CPEEK	5	FGLQP	6	AATKY	20
						SRLLA	20	CCRSS	5	RFVTS	6	TNLDT	20
						RLLAV	20	LWLPS	6	VTSQA	6	PDRAH	20
						RASAT	20	WLPSE	6	PPAPK	6	VQSTH	20
						VALHR	20	VPKVS	6	VNLKE	6	QLCTE	20
						STAAA	20	PKVSG	6	KFSAD	6	ILECV	20
						AGAVG	21	GISGH	6	IPKVE	6	REVYD	20
						GSGGG	21	YAANA	6	TIAEQ	6	FYSKI	20
						RRLSS	21	KQTQL	6	EQILQ	6	NKPLC	20
						SSRTR	21	VAVNP	6	FGGLG	6	LAVGH	21
						TSSTS	22	VNPGD	6	LGTRP	6	TQRLV	21
						SRTRR	22	AVGEN	6	APVRP	6	LNKLD	21
						STSLS	23	TANLA	6	LTVDP	6	VDNRE	21
						PAAAT	24	DAQIF	6	PVGPS	6	DGDMV	21
						RAGAV	25	GICWG	6	SDPSI	6	YIKGS	21
						SSTST	25	HTPPA	6	ETSFI	6	IKGSG	21
						VVLLL	25	DPLKK	6	SIPPD	6	QRAQG	21
						VALGT	25	RHKRS	6	GFSIT	6	QLFVT	21
						PVARL	26	KRSAK	6	STDTT	6	AAIST	21
						SSGSG	26	SAKRT	6	TTPAI	6	EYDLQ	21
						LRNAL	26	RTKRA	6	TVTTV	6	NSTIL	21
						AVALG	26	TKRAS	6	SVLQP	6	TCPPD	21
						AANAG	27	VEGKT	6	TISTH	6	VSTNP	21
						TSSTP	29	LGIGT	6	IVSTN	6	RPVAR	21
						VARLG	30	TATDT	6	IPGSR	6	VDPAF	21
						PAGQA	30	LTVDP	6	KVVDP	6	TTTSH	21
						LLQAG	32	VGPSD	6	FLDIV	6	IPANT	21
						LLAVG	33	SVPSI	6	LTSRR	6	PDIPI	21
						GGSGG	33	TTSTD	6	TSRRT	6	NITDQ	21
						AGGQV	33	STDTT	6	GIRYS	6	FTAQE	21
						TAASA	35	TDPSV	6	GAKVH	6	PLTNI	21
						AAMLA	39	LGLYS	6	TIDPA	6	FKELY	21
						ADPAA	39	VKVVD	6	LSGYI	6	SNSQA	21
						ARLGL	47	TPTKL	6	IPFGG	6	FMSFL	21
						TAAAL	55	DFLDI	6	YNIPL	6	RLNVC	21
						RRKRL	102	TIDPA	6	NIPLV	6	EVYLT	21
						PPAPK	108	EIELQ	6	QAPSL	6	EVHAG	21
						SIADS	108	ITPST	6	IIADA	6	ATKYP	21
								PSTYT	6	MLRKR	6	CTETQ	21
								ADDFI	6	PYFFS	6	LTAHT	21
								MLRKR	6	YVEAV	6	CYEQL	21
								MADPA	6	ENDSD	6	DEIDG	21
								GTNGE	6	SDTGE	6	IDGPA	21
								TNGEE	6	LTQAE	6	CPICS	21
								NENDS	6	QAETE	6	LKFYS	21
								SDISG	6	HRDAV	6	CRSSR	21
								NISPR	6	VQVLK	6	RETQL	21
								AICIE	6	LKRKY	6	SLWLP	22
								KQSRA	6	YLVSP	6	PYFPI	22
								GGCSQ	6	NISPR	6	PDPNK	22
								YSSGS	6	SGGGC	6	DTENA	22

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								LTNIL	6	YSSGS	6	TNVAV	22
								ELYGV	6	NAKAA	6	FYLRR	22
								FSELV	6	AKAAM	6	ILEDW	22
								TPSIA	6	LTPSI	6	DPLKK	22
								EPPKL	6	KLLCV	6	GTCPP	22
								KTGIS	6	PPKLR	6	RTTQQ	22
								QTVLQ	6	GDTPE	6	AFVTT	22
								TVLQH	6	RQTVL	6	NTLYF	22
								VLQHS	6	SFNDC	6	YYYDL	22
								LADTN	6	YAQLA	6	STIDP	22
								SNSQA	6	SAFLK	6	YNIPL	22
								GGDWK	6	SLMKF	6	LIPIV	22
								LQGIP	6	KFLQG	6	IIADA	22
								FLQGS	6	NLVSM	6	KRLPY	22
								NALDG	6	HNRLV	6	MADPA	22
								DGNLV	6	LHEDE	6	GTGCN	22
								RPLVQ	6	NTNTL	6	QYSSG	22
								PPLLI	6	STDLR	6	SKLLC	22
								GNPVY	6	TDLRD	6	DIVDD	22
								WSRLS	6	LRDHI	6	ADTNS	22
								LSLHE	6	NKALQ	6	AKIVK	22
								RLECA	6	SLEVY	6	GVEFM	22
								QVVPT	6	SKNKV	6	KRFLQ	22
								NKALQ	6	VFSSN	6	RNALD	22
								AIELQ	6	HTKAV	6	WKSFF	22
								VEGQV	6	LGTEE	6	LPTFK	22
								EGIRT	6	QRPRS	6	VCQDK	22
								SPEII	6	VDSAP	6	VHEGI	22
								QHLAN	6	SHKGR	6	GRINC	22
								LANHP	6	NTTPI	6	QSSLH	22
								SEPDT	6	SEWQR	6	SAFRC	22
								PILTA	6	LSQVK	6	CKCDS	22
								SNTTP	6	KYPLL	6	LGIVC	22
								TPLSC	6	PPRPI	6	PQLCT	22
								LHLTA	6	PRPIP	6	YRDGN	22
								LLACF	6	KHRRL	6	LEQQY	22
								CFLLC	6	KDGLT	6	KPLCD	22
								FLLCF	6	LLCFC	6	PLCDL	22
								VLLCV	6	CFCVL	6	CDLLI	22
								LIRPL	6	STYTS	6	EKQRH	22
								STYTS	6	VLLLW	6	GISGH	23
								SLIIL	6	VYIPL	6	LINTV	23
								IPLFL	6	RLCVQ	6	TTAKR	23
								DTPTL	6	RTLED	6	TNPNT	23
								LRLCV	6	GTTLE	6	PDFLD	23
								GTLGI	6	EKQRH	6	TIDPA	23
								DPQER	6	QRHLD	6	GYIPA	23
								RKLPQ	6	SSRTR	6	GDFYL	23
								ELQTT	6	SLWLP	7	KAAML	23
								RREVY	6	PSEAT	7	KSNKS	23
								FRDLC	6	LAVGH	7	EIAYK	23
								RDGNP	6	QPLGV	7	KDCAT	23
								KPLCD	6	KLDDT	7	VKHRP	23
								PLCDL	6	KQTQL	7	LVVFT	23

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								LCPEE	6	FTTLQ	7	FPFDE	23
								KQRHL	6	FVRHL	7	VSGQN	23
								VPVSK	7	VRHLF	7	NTNTL	23
								VVSTD	7	ASSNY	7	RLECA	23
								LVPKV	7	FPTPS	7	VHAGG	23
								RIHLP	7	QRAQG	7	PTSVF	23
								FPDTS	7	RSTNM	7	EIIRQ	23
								PDTQR	7	CAAIS	7	TAFNS	23
								VGRGQ	7	LRHGE	7	SQVKI	23
								TNVAV	7	GEEYD	7	YSSNE	23
								EVPLD	7	LEDTY	7	QDQSQ	23
								DSLFF	7	DTYRF	7	AHTKD	23
								SLFFY	7	EDPLK	7	QAEPD	23
								VRHLF	7	ADLDQ	7	KQRHL	23
								NRAGA	7	GRKFL	7	VAVNP	24
								STANL	7	FTLGK	7	QFIFQ	24
								LFVTV	7	SAKRT	7	LEDTY	24
								TILED	7	RTKRA	7	YRFVT	24
								PAPKE	7	KVEGK	7	AGTCP	24
								AKRTK	7	KTIAE	7	IDAGA	24
								IPKVE	7	TRPPT	7	IVSTN	24
								IGTGS	7	ATDTL	7	YEGID	24
								PTATD	7	PPLTV	7	DNTLY	24
								PLTVD	7	GPSDP	7	SNDNS	24
								VDPVG	7	EETSF	7	DNSIN	24
								SITTS	7	PPDVS	7	NKQTL	24
								TFTDP	7	ITTST	7	LFESE	24
								STIST	7	TPAIL	7	SQYSS	24
								RTGIR	7	NNTVT	7	PSIAD	24
								QTLRT	7	TKLIT	7	LQHSF	24
								SGKSI	7	IGAKV	7	KNCIL	24
								KSIGA	7	TSHAA	7	LYGAA	24
								IDPAE	7	IPIVP	7	PLADA	24
								YTTTS	7	PGSPQ	7	ADAKI	24
								DTSTT	7	DAGDF	7	VSMDV	24
								ISDDE	7	ETAHA	7	GNPVY	24
								DTGED	7	AHALF	7	LNDKN	24
								HRDAV	7	RKYLV	7	HQVVP	24
								RDAVQ	7	SRAAK	7	PEIIR	24
								LFESE	7	RLFES	7	AIVTL	24
								LQVEG	7	QQMLQ	7	PLFLI	24
								GRHET	7	VEGRH	7	DLLIR	24
								TPCSQ	7	TPLTN	7	KPLCP	24
								SGGGC	7	NVLKT	7	PLCPE	24
								QTPLT	7	KTSNA	7	CPEEK	24
								VLKTS	7	LAKFK	7	NVAVN	25
								AFGLT	7	IAAFG	7	LRHGE	25
								KLLSK	7	SIADS	7	GSMGV	25
								SKLLC	7	KLRST	7	TVDPV	25
								PPKLR	7	QTVLQ	7	PAETG	25
								PKLRS	7	TFELS	7	TPSTY	25
								NTGKS	7	DIVDD	7	FIVND	25
								QPLAD	7	DSEIA	7	VDNNI	25
								DDATV	7	AEKKQ	7	KQSRA	25

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								RLVVF	7	VMFLR	7	QMLQV	25
								NGNPV	7	MSFLT	7	ADSIK	25
								FFSRT	7	FLQGI	7	NALDG	25
								LHEDE	7	CFVNS	7	ALDGN	25
								NDGDS	7	LDDAT	7	EETQT	25
								ENDST	7	DATVP	7	KLLHR	25
								STDLR	7	NALDG	7	SNTTP	25
								DLRDH	7	HRPLV	7	STWPT	25
								ELQLT	7	LITSN	7	TTPPR	25
								EKWTL	7	AGTDS	7	DQSQT	25
								EVHAG	7	ELNDK	7	QTPET	25
								TKAVA	7	LEVYL	7	ACFLL	25
								QRPRS	7	YLTAP	7	DLQPE	25
								RSEPD	7	TMHYT	7	VNPGD	26
								TTKLL	7	CEEAS	7	FTTLQ	26
								VSSTW	7	FSSNE	7	TTLQA	26
								IVTLT	7	IRQHL	7	PKFTL	26
								QFLSQ	7	RPRSE	7	ILQYG	26
								TKDGL	7	LTAFN	7	YFSSN	26
								LACFL	7	IVTLH	7	SSNDN	26
								CVCLL	7	ASAFR	7	GIRYS	26
								SVSTY	7	DTPTL	7	ADDFI	26
								SAFRC	7	PTLHE	7	DIPIN	26
								ARFLI	7	EDEID	7	TGDAI	26
								LQPET	7	DEIDG	7	PRLKA	26
								GQAEP	7	DSTLR	7	LKAIC	26
								LPQLC	7	LLMGT	7	AFGLT	26
								TELQT	7	LMGTL	7	AANTG	26
								SKISE	7	PRKLP	7	NLRNA	26
								TTLEQ	7	REVYD	7	METLC	26
								GRWTG	7	RDGNP	7	AREMG	26
								PVSKV	8	NPYAV	7	GQVIL	26
								VARTN	8	CDLLI	7	ILCPT	26
								LAVGH	8	HLDKK	7	NTLKC	26
								QPLGV	8	GTSRL	8	ITVST	26
								GHPLL	8	AVGHP	8	LLLWI	26
								DCPPL	8	VSGLQ	8	QPETT	26
								TGFGA	8	GVEVG	8	IRTLE	26
								KSEVP	8	ASAYA	8	LCTEL	26
								TLTAD	8	GKGSP	8	DIILE	26
								RFVTS	8	LINTV	8	LECVY	26
								VTSQA	8	SMVTS	8	SGLQY	27
								LGKRK	8	KAKPK	8	NASAY	27
								STTAK	8	RSAKR	8	LCAAI	27
								GYIPL	8	KRTKR	8	KFSAD	27
								GTRPP	8	AEQIL	8	GRKFL	27
								TVDPV	8	LGIGT	8	KRTKR	27
								SGFSI	8	NTVTT	8	IIPKV	27
								AILDI	8	QPPTP	8	EGKTI	27
								VLQPP	8	STPIP	8	GKTIA	27
								QPPTP	8	GIDVD	8	EETSF	27
								ETGGH	8	HRPAL	8	IPGSR	27
								SSTPI	8	RTGIR	8	SRPVA	27
								YDLST	8	EIELQ	8	TTQQV	27

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								PAEEI	8	IELQT	8	APDPD	27
								IVPGS	8	SPTSI	8	YSRIG	27
								RLPYF	8	TTIPF	8	SIGAK	27
								DPAGT	8	APSLI	8	HAASP	27
								NDSDT	8	AGTNG	8	DDENE	27
								LVDFI	8	FYVEA	8	SEVYG	27
								AHALF	8	VEKKT	8	NSNAS	27
								YLVSP	8	AVQVL	8	KFLQG	27
								SPRLK	8	SPLSD	8	FVNSK	27
								FESED	8	ISPRL	8	FDENG	27
								EDSGY	8	PRLKA	8	QRLNV	27
								VETQQ	8	SGYGN	8	LRDHI	27
								GKNRE	8	EGVSE	8	LANHP	27
								KNRET	8	ERHTI	8	HTKAV	27
								IVDDS	8	LTNIL	8	TKAVA	27
								AFLKS	8	LNVLK	8	EPDTG	27
								DATVP	8	AKFKE	8	PILTA	27
								LVQLK	8	SNKST	8	LKCLR	27
								LLITS	8	AFGLT	8	ILKWK	27
								SLHED	8	IADSI	8	WTVLQ	27
								EDEDK	8	LCVSP	8	FCVLL	27
								TLQDV	8	YGDTP	8	TYTSL	27
								SVTVV	8	AQLAD	8	MGTLG	27
								PTSVF	8	KRAEK	8	RVFRI	28
								HPAAT	8	MFLRY	8	HLPDP	28
								RDSVD	8	ANTGK	8	KPPIG	28
								KGDAN	8	GKSLF	8	AMDFT	28
								RDQFL	8	LQGSV	8	ICTSI	28
								LSQVK	8	LDGNL	8	KMVSE	28
								PRPIP	8	DGNLV	8	PSGSM	28
								QSQTP	8	INAGT	8	QLCKI	28
								VTLHP	8	KSFFS	8	LKKYT	28
								DSTLR	8	AVSKN	8	IPKVE	28
								EDLLM	8	QLTLE	8	TDTLA	28
								LGIVC	8	LETIY	8	DTFIV	28
								PQERP	8	YSNEK	8	QTLRT	28
								TLEQQ	8	TLQDV	8	PAEEI	28
								QKPLC	8	EVYLT	8	INNGL	28
								PEEKQ	8	PTSVF	8	PIVPG	28
								GFPDT	9	TKLLH	8	GEDLV	28
								VGVEV	9	LHRDS	8	LVRPF	28
								VGISG	9	NSNTT	8	SNKST	28
								GDSLF	9	SNTTP	8	YKTGI	28
								FPTPS	9	VHLKG	8	NASAF	28
								TTRST	9	TYDSE	8	QGIPK	28
								PPAPK	9	LKLLG	8	LVSMD	28
								GLKAK	9	RPIPK	8	ETLCQ	28
								TLGKR	9	SLHLT	8	TQTTI	28
								KRKAT	9	LTAHT	8	HLTAH	28
								FFGGL	9	DGLTV	8	PQERP	28
								GLGIG	9	ACFLL	8	ILVPK	29
								DTLAP	9	LLCVC	8	AYAAN	29
								SLVEE	9	IRPLL	8	PDYIK	29
								TPAIL	9	IPLFL	8	SMVTS	29

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								TTVTT	9	DPQER	8	ITLTA	29
								SVLQP	9	VVSTD	9	EKFSA	29
								PIPGS	9	DEYVA	9	KATPT	29
								LYSRT	9	LVPKV	9	IPLGT	29
								VDPAF	9	VGISG	9	SIPPD	29
								ALHRP	9	PLLNK	9	DPDFL	29
								EEIEL	9	PLELI	9	SLIPI	29
								TITPS	9	SEVPL	9	GGCSQ	29
								STTPV	9	VPLDI	9	KTGIS	29
								GDAIS	9	TSDAQ	9	ALKRF	29
								RLKAI	9	LFVTV	9	SLFGM	29
								TEVET	9	PPPGG	9	GSVIC	29
								GLTPS	9	YRFVT	9	LHNRL	29
								IQSLA	9	HTPPA	9	KILTH	29
								RETIE	9	DPLKK	9	VSKNK	29
								RQTVL	9	NLKEK	9	PDTGN	29
								DRVDD	9	SADLD	9	DQFLS	29
								TALKR	9	FLLQA	9	GLTVI	29
								KSLFG	9	ASATQ	9	HLDKK	29
								PLVQL	9	IGTGS	9	VSKVV	30
								EDKEN	9	PLGTR	9	GLQYR	30
								KENDG	9	TLAPV	9	ASAYA	30
								AREMG	9	PVRPP	9	ANAGV	30
								PTLAV	9	DAGAP	9	NFGLQ	30
								LEVYL	9	PDVSG	9	PLKKY	30
								LTAPT	9	DTTPA	9	TTPAI	30
								FSSNE	9	PNTVT	9	EIPMD	30
								NEVSS	9	NTVTS	9	TPTKL	30
								PAATH	9	GSRPV	9	EGIDV	30
								PRSEP	9	EGIDV	9	PANTT	30
								GDANT	9	RRTGI	9	MSFLT	30
								TVSTG	9	TRSGK	9	SMDVK	30
								VSTGF	9	DDFIT	9	KHRPL	30
								LKLLG	9	PFGGA	9	FTFPN	30
								PTTPP	9	PSLIP	9	TIYNS	30
								KHRRL	9	VPGSP	9	LTAPT	30
								LTVIV	9	VVEKK	9	EASVT	30
								VIVTL	9	DENEN	9	IVTLT	30
								TLLAC	9	VLKRK	9	FLSQV	30
								ETTDL	9	KYLVS	9	RPIPK	30
								LCDLL	9	RLKAI	9	PSPWA	30
								EKQRH	9	EKQSR	9	SPWAP	30
								QRHLD	9	NTEVE	9	LYCYE	30
								VYLPP	10	QVEGR	9	VVSTD	31
								DTQRL	10	KELYG	9	TSQAI	31
								ACVGV	10	SKLLC	9	KRKAT	31
								VEVGR	10	LKSNS	9	GRTGY	31
								RGQPL	10	DRVDD	9	LDINN	31
								GQPLG	10	TALKR	9	PMDTF	31
								LGVGI	10	KRFLQ	9	FLDIV	31
								GKGSP	10	DEDKE	9	TDTST	31
								TTLQA	10	ALQAI	9	INITD	31
								LFFYL	10	LQLTL	9	ELYGV	31
								GENVP	10	TLETI	9	LLVRY	31

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								GTLED	10	VTVVE	9	RQTVL	31
								RKATP	10	EGIRT	9	ANTGK	31
								KATPT	10	TTKLL	9	VNSKS	31
								AKRKK	10	KGDAN	9	ATVPC	31
								KTIAE	10	CYSSN	9	RTWSR	31
								EQILQ	10	LSVST	9	TDLRD	31
								TDTLA	10	LLLWI	9	AVSKN	31
								DPSIV	10	ITAAS	9	LHEYM	31
								PSIVS	10	LQPET	9	MLDLQ	31
								SIVSL	10	LLIRC	9	EPDRA	31
								PSIPP	10	RETQL	9	VCPIC	31
								PDVSG	10	NIYYH	10	ERPRK	31
								FTLSS	10	TQRLV	10	TDEYV	32
								EGIDV	10	VEVGR	10	GFPDT	32
								DQAPS	10	PLGVG	10	EVGRG	32
								LTQAE	10	TENAS	10	LCLIG	32
								TAHAL	10	TNVAV	10	WGKGS	32
								DAVQV	10	GDCPP	10	SLCAA	32
								EGRHE	10	YGDSL	10	HTPPA	32
								AKAAM	10	GDSLF	10	FSADL	32
								ELVRP	10	RHLFN	10	PPLTV	32
								SIADS	10	SLCAA	10	LYSRT	32
								ETIEK	10	TSETT	10	TITPS	32
								TIEKL	10	TILED	10	APSLI	32
								AQLAD	10	GTLED	10	MLRKR	32
								NSNAS	10	LQAGL	10	QVEGR	32
								LLYGA	10	KRKAT	10	SQYSG	32
								RNALD	10	AKRKK	10	MVVLL	32
								LQDVS	10	TKRAS	10	VDDSE	32
								TAPTG	10	GLGIG	10	DDATV	32
								AGGQV	10	GGRTG	10	GTDSR	32
								SNEVS	10	PLTVD	10	VYELN	32
								AATHT	10	DPSVL	10	DSTDL	32
								LGTEE	10	FTLSS	10	KDDAE	32
								LHRDS	10	VARLG	10	KIPKT	32
								AFNSS	10	VKVVD	10	PIPKP	32
								PKPSP	10	VTTPT	10	VTLHP	32
								IRPLL	10	DLSTI	10	TLLAC	32
								NDSSE	10	TITPS	10	DTPTL	32
								GPAGQ	10	HAASP	10	PETTD	32
								AEPDR	10	NTTIP	10	EDLLM	32
								RGRWT	10	ADPAG	10	KLDDT	33
								TQRLV	11	QEAKQ	10	GSPCT	33
								TENAS	11	SPRLK	10	RSAKR	33
								YLRRE	11	YSGGS	10	HFTLS	33
								ANLAS	11	LKTSN	10	IPIVP	33
								DTTRS	11	TSNAK	10	LHPSY	33
								ISTSE	11	IKTLL	10	DSDTG	33
								TSETT	11	SLACS	10	DAVQV	33
								RKFLL	11	KLLSK	10	TEVET	33
								AGLKA	11	VDDSE	10	NVLKT	33
								ATPTT	11	AFLKS	10	IADSI	33
								GKTIA	11	GAANT	10	LYLHI	33
								AEQIL	11	PLVQL	10	RETIE	33

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								GGLGI	11	PPLLI	10	TFELS	33
								PLGTR	11	DENGN	10	ASAFL	33
								LAPVR	11	LPTFK	10	RYQGV	33
								PVGPS	11	DVSLE	10	NPVYE	33
								IDAGA	11	NEVSS	10	YNSQY	33
								PAILD	11	RQHLA	10	VILCP	33
								LQPPT	11	KLLHR	10	SPEII	33
								PTPAE	11	GDANT	10	RQHLA	33
								PAFVT	11	YTAVS	10	RSEPD	33
								VALHR	11	TPPRP	10	YTSLI	33
								HRPAL	11	SQTPE	10	GQAEP	33
								KQTLR	11	GLTVI	10	CTELQ	33
								TLRTR	11	VIVTL	10	RREVY	33
								DPAEE	11	TLLAC	10	QRHLD	33
								SPTSI	11	FLLCF	10	DKKQR	33
								TTPVP	11	LIRPL	10	PIKKP	34
								DAGDF	11	SLIIL	10	GDCPP	34
								SDDEN	11	DGPAG	10	ELINT	34
								ALFTA	11	STHVD	10	FPTPS	34
								QEAKQ	11	PQERP	10	FQLCK	34
								EVETQ	11	PQLCT	10	SADLD	34
								QVEGR	11	TELQT	10	FPLGR	34
								HETET	11	LQTTI	10	LKAKP	34
								LKTSN	11	KQQLL	10	FVTTP	34
								KAAML	11	SRTRR	10	QHRDA	34
								LTPSI	11	PPVPV	11	ELVRP	34
								QSLAC	11	SKVVS	11	ISNIS	34
								VDDSE	11	YRVFR	11	EVYGD	34
								ALKRF	11	ANAGV	11	NCILL	34
								DEDKE	11	YLRRE	11	ELNDK	34
								DSTDL	11	ANLAS	11	STDLR	34
								ALQAI	11	SGSMV	11	DAEKY	34
								TLETI	11	FVTVV	11	IRQHL	34
								SSNEV	11	VVDTT	11	NSNTT	34
								ALGTE	11	VDTTR	11	LLIRP	34
								ETQTT	11	ISTSE	11	EQLND	34
								SSHKG	11	STSET	11	YGDSL	35
								QTPET	11	LTADV	11	NTTIP	35
								DTAST	11	KEDPL	11	YFFSD	35
								ERPRK	11	RKATP	11	EDSGY	35
								KLPQL	11	STTAK	11	VLQHS	35
								SLWLP	12	KRASA	11	CILLY	35
								GVGIS	12	LAPVR	11	AGTDS	35
								TSDAQ	12	SFIDA	11	AEKYS	35
								FSADL	12	IDAGA	11	RPRSE	35
								FPLGR	12	DVSGF	11	ASAFR	35
								PLGRK	12	VALHR	11	GDTPT	35
								TTAKR	12	DPAEE	11	DPQER	35
								SATQL	12	STTPV	11	PVSKV	36
								FGGLG	12	PVPSV	11	KVVST	36
								EETSF	12	ISDDE	11	FPDTS	36
								VTSST	12	LSDIS	11	TQLCL	36
								RPALT	12	ISGCV	11	KGSPC	36
								RSGKS	12	VLKTS	11	GENVP	36

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								DSDTG	12	SNAKA	11	DTTRS	36
								TETAH	12	KAAML	11	LQFIF	36
								LSDIS	12	ELVRP	11	QFPLG	36
								RLFES	12	LLQQY	11	ATQLY	36
								RHETE	12	IQSLA	11	VEGKT	36
								YSGGS	12	TIEKL	11	VGPSD	36
								VSFSE	12	LQPLA	11	STDTT	36
								RVDDG	12	LVQLK	11	DTTPA	36
								VDDGG	12	SLHED	11	PAILD	36
								LKRFL	12	EDEDK	11	TPIPG	36
								LYGAA	12	ENDGD	11	SHAAS	36
								TDLRD	12	NDGDS	11	RDAVQ	36
								QAIEL	12	SPEII	11	ISPRL	36
								VTVVE	12	AATHT	11	QSRAA	36
								VHAGG	12	LLHRD	11	TGISN	36
								LKGDA	12	RDSVD	11	FLKSN	36
								FLSQV	12	TTPIV	11	NGNPV	36
								TTPPR	12	LKCLR	11	LHEDE	36
								SLHLT	12	LYTAV	11	EKYSK	36
								VLLLW	12	KLLGS	11	TSVFS	36
								EDEID	12	HRRLS	11	RDSVD	36
								QKRTA	12	LHLTA	11	DIRTL	36
								RPRKL	12	LTVIV	11	VYRDG	36
								SGHPL	13	LCVCL	11	LVPKV	37
								LLNKL	13	CVCLL	11	VPKVS	37
								LASSN	13	RPRKL	11	EVNLK	37
								VTSDA	13	SKISE	11	SAKRT	37
								GLQPP	13	VPKVS	12	DPSIV	37
								GGTLE	13	EVPLD	12	NTVTT	37
								LLQAG	13	AISTS	12	TPAET	37
								KVEGK	13	LLQAG	12	AETGG	37
								TGGRT	13	GGLGI	12	DIYAD	37
								LGTRP	13	DPSIV	12	AQEAK	37
								PPTAT	13	PTSVP	12	EKQSR	37
								PTSVP	13	VPSIP	12	TNILN	37
								ALTSR	13	IPPDV	12	KELYG	37
								APSLI	13	VSGFS	12	SNASA	37
								VLKRK	13	TTSTD	12	SQAKI	37
								GGGCS	13	TDPSV	12	TSLII	37
								NAKAA	13	AETGG	12	LRLCV	37
								KLRST	13	ALTSR	12	IKKPN	38
								KRAEK	13	SGKSI	12	LPDPN	38
								RFLQG	13	GDAIS	12	SGHPL	38
								AANTG	13	ALFTA	12	TGFGA	38
								LDDAT	13	PLSDI	12	TVVDT	38
								CEEAS	13	SDISG	12	FIFQL	38
								LLHRD	13	QSRAA	12	ASATQ	38
								AFRDL	13	KTLLQ	12	TIAEQ	38
								ASAYA	14	DDSEI	12	LQYGS	38
								SEVPL	14	ILLYG	12	TGYIP	38
								GAVGE	14	FLQGS	12	VRPPL	38
								GSTAN	14	MLDDA	12	ETSFI	38
								QRAQG	14	DDNLR	12	LQTIT	38
								LQPPP	14	DSLPT	12	IVPGS	38

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								ATDTL	14	EVSSP	12	KKTGD	38
								APVRP	14	KAVAL	12	DLVDF	38
								RPPLT	14	SAPIL	12	AICIE	38
								IVSLV	14	RLSSD	12	GDTPE	38
								VEETS	14	PETPA	12	TNSNA	38
								PPDVS	14	VLLCV	12	GYTVE	38
								PALTS	14	LPQLC	12	TVEVQ	38
								PFGGA	14	EYVAR	13	CFLLC	38
								PLVSG	14	TSRLL	13	YSLYG	38
								PSLIP	14	SAYAA	13	SLYGT	38
								ISPRL	14	AVGEN	13	TENAS	39
								SFSEL	14	ITLTA	13	TRPPT	39
								LLQQY	14	QPPPG	13	LGLYS	39
								DDGGD	14	TTAKR	13	AETET	39
								LTALK	14	GTRPP	13	SRAAK	39
								GTDSR	14	APTSV	13	YSGGS	39
								ENDGD	14	PSVLQ	13	KSNSQ	39
								LQAIE	14	PAFVT	13	KRAEK	39
								VSLEV	14	RPALT	13	LITSN	39
								KDDAE	14	ELQTI	13	SFFSR	39
								ASTTL	14	PANTT	13	SSNEV	39
								ACFLL	14	PIVPG	13	TTKLL	39
								HARFL	14	AVVEK	13	APILT	39
								AGQAE	14	ETETA	13	DANTL	39
								RTLED	14	RRLFE	13	VSTGF	39
								HAGTS	15	LQVEG	13	FLLCF	39
								VTVVD	15	FSELV	13	RFLIT	39
								LRHGE	15	NASAF	13	TLRLC	39
								LTADV	15	SFLTA	13	QERPR	39
								FLLQA	15	TSVFS	13	GRGQP	40
								TPTTS	15	KWKLS	13	PGDCP	40
								TRPPT	15	TPETP	13	EEYDL	40
								TLAPV	15	TPATP	13	VTSQA	40
								DPSVL	15	LNDSS	13	NNTVT	40
								DPAFV	15	DSSEE	13	GKSIG	40
								DIVAL	15	TRRET	13	DQAPS	40
								TSRRT	15	PVPVS	14	FSELV	40
								TSHAA	15	VSTDE	14	FELSQ	40
								TGEDL	15	AGTSR	14	NTGKS	40
								RAAKR	15	AGAVG	14	LMKFL	40
								KTLLQ	15	GAVGE	14	CVSGQ	40
								QLADT	15	VGENV	14	TLETI	40
								LADAK	15	LASSN	14	LEVYL	40
								LTLET	15	KEYLR	14	VQFKD	40
								QDVSL	15	KKRKL	14	QFLSQ	40
								DSVDS	15	GTGGR	14	VLLCV	40
								TTLLA	15	IVSLV	14	LCVCL	40
								GDTPT	15	GAPTS	14	DEYVA	41
								LNDSS	15	TSTDT	14	NKILV	41
								KQQLL	15	PTPAE	14	GVEVG	41
								CRSSR	15	IPLVS	14	QPLGV	41
								EVGRG	16	PLVSG	14	VGISG	41
								GRGQP	16	RKRRK	14	TLQAN	41
								VARLG	16	KKTGD	14	DSLFF	41

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								VSGPD	16	SDDEN	14	GPSDP	41
								RKRLP	16	LVSPL	14	IPPDV	41
								AVVEK	16	EVETQ	14	RLGLY	41
								EKKTG	16	AAFGL	14	RKRLP	41
								PRLKA	16	LLVRY	14	DENEN	41
								AAMLA	16	RETIE	14	DGNLV	41
								LLCVS	16	LLYGA	14	DKEND	41
								TGKSL	16	DDATV	14	PAATH	41
								KLLHR	16	GDSLP	14	AAATK	41
								VDSAP	16	VPTLA	14	IRPLL	41
								PLLKL	16	SVTVV	14	LCPEE	41
								QSSLH	16	ATPLS	14	GTSRL	42
								LDTAS	16	TVLQS	14	VGVEV	42
								STTLL	16	LDTAS	14	AANAG	42
								EEDEI	16	FCVLL	14	MVSEP	42
								DLLIR	16	RSSRT	14	KRSAK	42
								KVSGL	17	LLNKL	15	AEQIL	42
								PLGVG	17	GENVP	15	ITTST	42
								LQRAQ	17	GGTLE	15	KSIGA	42
								PGGTL	17	VFFGG	15	RLKAI	42
								APTSV	17	GIGTG	15	DENGN	42
								SSSTI	17	PTATD	15	PKTIT	42
								PGSPQ	17	PSIVS	15	DGLTV	42
								EAVVE	17	SIVSL	15	GTTLE	42
								GEDLV	17	LVEET	15	PLGVG	43
								TQAET	17	PSIPP	15	YLRRE	43
								AVQVL	17	VLQPP	15	LFVTV	43
								AAALY	17	LQPPT	15	ADPAG	43
								CPPLL	17	RPVAR	15	SDTGE	43
								SLPTF	17	SSNDN	15	AKFKE	43
								VPTLA	17	LDIVA	15	IAAFG	43
								LQLTL	17	SHAAS	15	RFLQG	43
								EASVT	17	TSLSG	15	TGKSL	43
								VLQSS	17	VEAVV	15	DDNLR	43
								ILVLL	17	DDENE	15	DKILT	43
								DGPAG	17	AQEAK	15	EGQVD	43
								GTTLE	17	RDAVQ	15	VFSSN	43
								RETQL	17	LADTN	15	ILTAF	43
								ANAGV	18	RVDDG	15	LPQLC	43
								TSTTA	18	FLTAL	15	RTRRE	43
								RSAKR	18	ALDGN	15	RECIS	44
								GPSDP	18	SLPTF	15	KITLT	44
								VSGFS	18	PAATH	15	LTADV	44
								PSVLQ	18	AIVTL	15	KEDPL	44
								TPAET	18	ETPAT	15	RKATP	44
								FSDVS	18	LLACF	15	VKVVD	44
								KTGDA	18	EEDEI	15	TKLIT	44
								SELVR	18	SEATV	16	EKKTG	44
								GDTPE	18	TVVDT	16	QTVLQ	44
								LRNAL	18	TTRST	16	KIVKD	44
								KSFFS	18	PGGTL	16	CPPLL	44
								DDAEK	18	VRPPL	16	DSLPT	44
								TASTT	18	TSVPS	16	ELQLT	44
								KGSGS	19	TLRTR	16	KHRRL	44

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								STSET	19	EEIEL	16	LIRPL	44
								RHGEE	19	TTPVP	16	TLGIV	44
								SADLD	19	TPVPS	16	AFRDL	44
								VSLVE	19	TAQEA	16	YNPDT	45
								GSRPV	19	SELVR	16	TVIQD	45
								LRTRS	19	SNSQA	16	KYPDY	45
								AEEIE	19	LQAIE	16	VPDDL	45
								TSTTP	19	DDAEK	16	VTVVD	45
								VPSVP	19	TKAVA	16	KVEGK	45
								LVSGP	19	TITVS	16	APTSV	45
								ADPAG	19	QTPET	16	PPDVS	45
								QSRAA	19	LCDLL	16	GHFTL	45
								IEKLL	19	ENASA	17	PNTVT	45
								SAFLK	19	NLASS	17	VVEKK	45
								KAVAL	19	VTSDA	17	PLSDI	45
								VALGT	19	GLQPP	17	PPKLR	45
								QPPPG	20	KRKKR	17	FLQGS	45
								GKRKA	20	RKKRK	17	PLLIT	45
								RPPTA	20	VVDPA	17	SEPDT	45
								VRPPL	20	FVTTP	17	IVTLH	45
								LVEET	20	LRTRS	17	EDEID	45
								TSVPS	20	DVSLA	17	VFFGG	46
								RPVAR	20	ESEDS	17	LGIGT	46
								RTRSG	20	SFSEL	17	VDPVG	46
								NGEEG	20	ADTNS	17	PDPDF	46
								DDENE	20	DTNSN	17	RLFES	46
								SDTGE	20	LKRFL	17	NAKAA	46
								AQEAK	20	PLADA	17	VSFSE	46
								DGDSL	20	RNALD	17	LLQQY	46
								ASVTV	20	ELQLT	17	GMVVL	46
								ETPAT	20	VSLEV	17	QLADT	46
								SEATV	21	SAIVT	17	LTALK	46
								GSGST	21	TLEDL	17	TALKR	46
								AGAPT	21	RTRRE	17	GKSLF	46
								PGSRP	21	RRETQ	17	VEGQV	46
								PVARL	21	GQPLG	18	QRPRS	46
								VVDPA	21	TLTAD	18	ANTLK	46
								TPVPS	21	TGSGT	18	RDQFL	46
								PVPSV	21	SSTIS	18	LLCVC	46
								VEAVV	21	EAVVE	18	KILVP	47
								ETAHA	21	TAHAL	18	PDTSF	47
								EKQSR	21	GEGVS	18	PKEDP	47
								DVSLE	21	IEKLL	18	FTLGK	47
								TSVFS	21	ALKRF	18	TGSGT	47
								TEETQ	21	RLVVF	18	RPPTA	47
								LLGST	21	LSLHE	18	TDTTP	47
								SAYAA	22	DGDSL	18	LDIVA	47
								PPLEL	22	KDDAE	18	YLHPS	47
								LQAGL	22	GTEET	18	FGLTP	47
								SSTIS	22	LRREQ	19	QSLAC	47
								SRPVA	22	SVPSI	19	AAALY	47
								RRLFE	22	SRPVA	19	QRQTV	47
								GVSER	22	ASPTS	19	DSEIA	47
								LLSKL	22	VPSVP	19	PPRPI	47

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								DSLPT	22	EEGTG	19	TLTAD	48
								LAVSK	22	AETET	19	SQAIA	48
								PATPL	22	AKRRL	19	QVKVV	48
								ASAFR	22	ETETP	19	VALHR	48
								PAGQA	22	GLTPS	19	GGEGV	48
								TLEDL	22	LLCVS	19	HIQSL	48
								PTPSG	23	AANTG	19	NLVSM	48
								PPGGT	23	RLSLH	19	DGDSL	48
								TTSST	23	QDVSL	19	SSDQD	48
								PPLTV	23	ASVTV	19	VGENV	49
								PSDPS	23	LCPTS	19	TILED	49
								EGVSE	23	SNEVS	19	APVRP	49
								LLLVR	23	TVSTG	19	GFSIT	49
								LCVSP	23	PLLKL	19	PVARL	49
								FLTAL	23	DTAST	19	DPAGT	49
								RLSLH	23	TLEQQ	19	AGTNG	49
								SQTPE	23	GHPLL	20	KRKYL	49
								RRETQ	23	LDDTE	20	SPRLK	49
								VSGLQ	24	RAGAV	20	LQVEG	49
								ENASA	24	LQRAQ	20	SIADS	49
								LRREQ	24	RPPTA	20	DDSEI	49
								GVSFS	24	TDTTP	20	NSQAK	49
								GDSLP	24	EKKTG	20	LTLET	49
								RPRSE	24	LHIQS	20	AGGQV	49
								STLRL	24	AAALY	20	HRRLS	49
								GTSRL	25	TGKSL	20	AGTSR	50
								PTTSS	25	LADAK	20	ICKYP	50
								TAQEA	25	TLAVS	20	APKED	50
								AEKKQ	25	LAVSK	20	TLGKR	50
								SFLTA	25	KALQA	20	FGGLG	50
								LQPLA	25	DSVDS	20	VSGFS	50
								SVDSA	25	ADPAA	20	SGFSI	50
								TPETP	25	TTPPR	20	SITTS	50
								KRASA	26	LQSSL	20	TSTDT	50
								ASATQ	26	STTLL	20	ILDIN	50
								PAETG	26	AVNPG	21	GLYSR	50
								LTSRR	26	SGSTA	21	VSGPD	50
								TLLQQ	26	TATDT	21	SGGGC	50
								KALQA	26	SSSTI	21	LNVLK	50
								PSEAT	27	STIST	21	AMLAK	50
								PPVPV	27	VTSST	21	GISNI	50
								NLASS	27	ARLGL	21	VDDGG	50
								DVSLA	27	AEEIE	21	LVQLK	50
								LRSTA	27	DTSTT	21	QDKIL	50
								RAGAV	28	SVPST	21	QAIEL	50
								SLCAA	28	AAMLA	21	HLANH	50
								KRKKR	28	VSFSE	21	GTEET	50
								RKKRK	28	LSKLL	21	TVLQS	50
								KKRKL	28	LRSTA	21	TVIVT	50
								GAPTS	28	LTALK	21	LGVGI	51
								TVTSS	28	KENDG	21	TAKRK	51
								SRRTG	28	EASVT	21	GGRTG	51
								RAEKK	28	LPSEA	22	NTVTS	51
								TPATP	28	VEETS	22	ALHRP	51

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								SRTRR	28	TTVTT	22	TSRRT	51
								AANAG	29	DIVAL	22	TRSGK	51
								QAPSL	29	VPSTS	22	NIPLV	51
								VPGSP	29	SDVSL	22	DSGYG	51
								GGEGV	29	GEEGT	22	EPPKL	51
								LSKLL	29	ETIEK	22	PKLRS	51
								TPPRP	29	LLSKL	22	LLHRD	51
								ATPLS	29	SSLHL	22	SLHLT	51
								TPPAP	30	AANAG	23	KDGLT	51
								GGRTG	30	TPTTS	23	ETTDL	51
								PPTPA	30	GVFFG	23	NDSSE	51
								ARLGL	30	AGAPT	23	DTLAP	52
								SVPST	30	LGLYS	23	RPPLT	52
								AAFGL	30	RSGKS	23	FSSND	52
								SSLHL	30	GVSFS	23	LSGYI	52
								TGSGT	31	RSTAA	23	FFSDV	52
								GTGGR	31	VSSPE	23	SDDEN	52
								SDVSL	31	LLGST	23	YLVSP	52
								AKRRL	31	SRLLA	24	GDSLP	52
								TLAVS	31	PPLEL	24	VTLTY	52
								EEASV	31	RAAKR	24	KTITV	52
								EVSSP	31	EEASV	24	TKYPL	52
								PETPA	31	PATPL	24	VLLLW	52
								TSLSG	32	ASTTL	24	RKLPQ	52
								ADAGD	32	LQPPP	25	LQTTI	52
								GTEET	32	ATPTT	25	VSTDE	53
								PVRPP	33	SGTGG	25	GIGTG	53
								QAETE	33	ASAFL	25	PLTVD	53
								AAKRR	33	LEDLL	25	VARLG	53
								SNASA	33	PVARL	26	QEAKQ	53
								HRRLS	33	LRNAL	26	QVLKR	53
								LQSSL	33	STLRL	26	FESED	53
								TRRET	33	LRLCV	26	DDGGD	53
								STSTT	34	PPTPA	27	SSHKG	53
								VPSTS	34	TTQQV	27	IPKTI	53
								SEDSG	34	SRRTG	27	LTVIV	53
								GEGVS	34	TDTST	27	LLMGT	53
								SLACS	34	ADAGD	27	AKRTK	54
								DAGAP	35	VDDGG	27	DIVAL	54
								RLSSD	35	SFFSR	27	QTPLT	54
								TSRLL	36	DPAAA	27	AAMLA	54
								ESEDS	36	ILVLL	27	LAKFK	54
								LRREV	36	LPPVP	28	GVSFS	54
								PVPVS	37	VSLVE	28	SNISE	54
								RASAT	37	VSPLS	28	ILLYG	54
								EEGTG	37	TLLQQ	28	SLPTF	54
								DPAAA	37	AVALG	28	KNKAL	54
								AAATK	37	PTTPP	28	VVEGQ	54
								SRAAK	38	AAIST	29	HPAAT	54
								LSVST	38	SNDNS	29	KAVAL	54
								LEDLL	38	LRKRR	29	STANL	55
								RSSRT	38	GGEGV	29	LGKRK	55
								RTRRE	38	GSGST	30	PIPGS	55
								EETQT	39	SLVEE	30	GDAIS	55

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
								RRKRL	40	PSTSL	30	KNRET	55
								EKLLS	40	GSGGE	30	NISEV	55
								SFFSR	40	TVTSS	31	LQAIE	55
								SGTGG	41	STSLS	31	SKNKV	55
								TSSTP	41	AAKRR	31	FNSSH	55
								HAASP	41	TAPTG	31	TLTYD	55
								VVLLL	41	VHAGG	31	SRTRR	55
								LRKRR	42	RPLLL	31	GHPLL	56
								SPLSD	42	AASPT	32	TLEDT	56
								AVSST	42	DDGGD	32	LGTRP	56
								ADPAA	42	RLLAV	33	TTPTK	56
								AGAVG	43	YLRHG	33	TAPTG	56
								PPPGG	43	SATQL	33	YICEE	56
								GSGTG	43	VTTVT	33	ICEEA	56
								LPPVP	44	TTLLA	33	PRSEP	56
								ETETA	44	PSVPS	34	LSQVK	56
								PLADA	44	AASAF	34	QSTHV	56
								LLKLL	44	LTAPT	35	QKRTA	56
								RLLAV	45	TVVEG	35	RKFLL	57
								LLAVG	45	GSGTG	36	PTPAE	57
								AVALG	45	PPIGE	37	KVVDP	57
								LPSEA	46	GNLVS	37	ELQTI	57
								SSRTR	46	LLKLL	37	PFGGA	57
								VSSPE	47	TPPAP	38	GTNGE	57
								GTGSG	48	SVDSA	38	NGEEG	57
								LLRRE	49	TSTTP	39	LKRKY	57
								GEEGT	50	KRRKR	39	AFLKS	57
								ETETP	50	RRKRL	39	GTLGI	57
								TPSGS	51	AVSST	39	TELQT	57
								GSGGE	51	EEKQR	39	TTLEQ	57
								SGSTA	52	LLAVG	40	FGLQP	58
								RSTAA	52	TSSTP	40	KRASA	58
								AGTSR	53	EKLLS	40	DPVGP	58
								SHAAS	53	QVVPT	40	LHRPA	58
								VLLLV	53	VGVEV	41	TLRTR	58
								AETET	54	TTSST	41	LRTRS	58
								SGGEG	54	STSTT	41	VDSAP	58
								AETGG	57	QQLLR	41	RGQPL	59
								QLLRR	57	TPSGS	42	SVPSI	59
								EEKQR	57	LLLVR	42	STPIP	59
								AASAF	58	VVPTL	42	HRPAL	59
								QQLLR	58	QLLRR	42	VPSTS	59
								PSTSL	59	GTGSG	43	VEKKT	59
								KRRKR	59	LCAAI	44	KFKEL	59
								PAAAT	59	LLSVS	45	LTPSI	59
								PSVPS	60	SEEED	45	IKTLL	59
								LVSPL	60	PPTAT	46	LKGDA	59
								TAVSS	60	VSLAA	46	LACFL	59
								DSSEE	61	SVFSS	47	ITAAS	59
								LLSVS	62	SNASA	48	PSEAT	60
								AASPT	66	PTTSS	50	KSEVP	60
								RKRRK	66	TASTT	50	GLGIG	60
								VSLAA	66	SSEEE	50	EVETQ	60
								ASAFL	66	LLLSV	51	ETETP	60

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
								RPLLL	71	TAASA	51	TPLTN	60
								SEEED	73	LRREV	51	PLVQL	60
								LLLSV	75	TSTTA	52	KSFFS	60
								SRLLA	78	SGGEG	52	YPLLK	60
								TAASA	79	RRLSS	52	IVYRD	60
								SGSGG	80	GGGCS	54	GAVGE	61
								ASPTS	83	PAAAT	54	ANLAS	61
								SRLSL	83	LYGAA	55	VVDTT	61
								TSSTS	88	TAVSS	55	KAKPK	61
								GSGGG	89	AAATK	55	FSDVS	61
								SSTST	91	TSSTS	56	AKRRL	61
								SVFSS	91	TLSSS	57	LQGIP	61
								STAAA	94	LSSST	58	SLHED	61
								LVLLL	96	LLRRE	61	ALQAI	61
								GGSGG	105	TAAAL	62	TLKCL	61
								TAAAL	109	NGEEG	64	VKIPK	61
								SGGSG	112	PLLLS	68	LTSRR	62
								SSGSG	116	VVLLL	70	LSTID	62
								PLLLS	120	SSGSG	81	IPLVS	62
								SSEEE	125	SSTST	82	AAKRR	62
								STSLS	126	LVSGP	82	GNTEV	62
								VSPLS	130	STAAA	100	ELSQM	62
								TLSSS	134	SGSGG	103	AQLAD	62
								RRLSS	135	IKGSG	109	NKALQ	62
								LSSST	157	LVLLL	111	TLQDV	62
								EEEDE	241	VLLLV	140	PLLNK	63
										VLQSS	142	LAPVR	63
										GGSGG	150	SVLQP	63
										GSGGG	177	RTRSG	63
										EEEDE	182	RRLFE	63
										PTLAV	193	DLRDH	63
										VTVVD	199	LAVSK	63
										SRLSL	208	DSVDS	63
										PINIT	219	LIILV	63
										TGGRT	230	LDKKQ	63
										SGGSG	247	KGSGS	64
												DAGAP	64
												TEETQ	64
												LSSDQ	64
												SEATV	65
												GGTLE	65
												PLGRK	65
												KFLLQ	65
												VPSIP	65
												DFLDI	65
												STTPV	65
												ETETA	65
												PTLAV	65
												FTLSS	66
												ADAGD	66
												ETIEK	66
												SAPIL	66
												LDTAS	66
												LLACF	66

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
												PRKLP	66
												VSGLQ	67
												GKGSP	67
												ANKSE	67
												KTIAE	67
												SSTPI	67
												GSRPV	67
												ITPST	67
												SPTSI	67
												LKSNS	67
												VPTLA	67
												RLSSD	67
												ETPAT	67
												LWLPS	68
												SRRTG	68
												GVSER	68
												LTNIL	68
												KSLFG	68
												INAGT	68
												SVTVV	68
												FTDPS	69
												DTSTT	69
												SDISG	69
												VTVVE	69
												LHRDS	69
												PRPIP	69
												DTAST	69
												TTLLA	69
												LQPET	69
												GPAGQ	69
												TVVEG	70
												ETQTT	70
												LVEET	71
												YSSGS	71
												VLKTS	71
												TKLLH	71
												AFNSS	71
												TKDGL	71
												RTLED	71
												NLASS	72
												STILE	72
												KEKFS	72
												GTRPP	72
												LTVDP	72
												LVSGP	72
												VEAVV	72
												LVDFI	72
												RPLVQ	72
												ASVTV	72
												EGIRT	72
												AVSST	72
												AISTS	73
												DPAEE	73
												SDPSI	74

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
												PTSVP	74
												TDPSV	74
												EEIEL	74
												SGYIP	74
												LLYGA	74
												DEDKE	74
												ASTTL	74
												PAGQA	74
												ISTSE	75
												AGAPT	75
												QQMLQ	75
												ATPLS	75
												KLPQL	75
												TATDT	76
												PVGPS	76
												AILDI	76
												EDLVD	76
												LTQAE	76
												AGQAE	76
												PTPSG	77
												STIST	77
												GGGCS	77
												VVPTL	77
												ALGTE	77
												ELQTT	77
												TLEQQ	77
												KVSGL	78
												RASAT	78
												TPAIL	78
												EIELQ	78
												LLCVS	78
												SFLTA	78
												LLITS	78
												AASAF	78
												LRREQ	79
												GTLED	79
												GLKAK	79
												PVRPP	79
												RSGKS	79
												KTLLQ	79
												KLRST	79
												LDDAT	79
												SQTPE	79
												IPLFL	79
												DGPAG	79
												LDDTE	80
												SEVPL	80
												VTSST	80
												SAFLK	80
												LQLTL	80
												QDVSL	80
												KKHRR	80
												VCLLI	80
												TSETT	81

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
												PSIPP	81
												LQANK	82
												RAGAV	82
												PPTAT	82
												VLQPP	82
												VTTPT	82
												SGKSI	82
												PSLIP	82
												IQSLA	82
												LRSTA	82
												CVCLL	82
												EAVVE	83
												LVSPL	83
												LSLHE	83
												LCQRL	83
												PETPA	83
												PGGTL	84
												DLSTI	84
												RAAKR	84
												EVPLD	85
												QAGLK	85
												PLGTR	85
												SLSGY	85
												AVVEK	85
												TIEKL	85
												EEDEI	85
												VPVSK	86
												GVGIS	86
												PPGGT	86
												TSTTA	86
												RSSRT	86
												SSRTR	86
												LSVST	87
												RPRKL	87
												VNLKE	88
												SELVR	88
												ILNVL	89
												PEEKQ	89
												SFSEL	90
												VSSPE	90
												QLNDS	90
												SKISE	90
												ATPTT	91
												GTGGR	91
												RRKRL	91
												QAETE	91
												TITVS	91
												TASTT	91
												AEEIE	92
												SVFSS	92
												LELIN	93
												SLACS	93
												SLIIL	93
												GKRKA	94

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
												EQILQ	94
												VLKRK	94
												SGGEG	94
												LLLVR	94
												SSPEI	94
												LDLQP	94
												PPLEL	95
												VALGT	95
												GQPLG	96
												FLLQA	96
												FFGGL	96
												EEGTG	96
												IEPPK	96
												AGLKA	97
												PALTS	97
												LKTSN	98
												QLTLE	98
												EVSSP	98
												AKRKK	99
												IGTGS	99
												TPPRP	99
												IVSLV	100
												KALQA	100
												LGTEE	100
												TAVSS	100
												PKPSP	100
												VQVLK	101
												RAEKK	101
												RLSLH	101
												VSLEV	101
												TSVPS	102
												ISDDE	102
												DSTLR	102
												TLAPV	103
												AEKKQ	103
												SSLHL	103
												PLELI	104
												LQRAQ	104
												PSDPS	104
												GEEGT	104
												LADAK	104
												GLQPP	105
												TAQEA	105
												LDGNL	105
												VIVTL	105
												TTSTD	106
												QPPTP	106
												ARLGL	106
												ALFTA	106
												GEGVS	107
												GNLVS	107
												KYPLL	107
												TPETP	107
												GSGGE	108

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
												ADPAA	108
												EEASV	109
												LRNAL	110
												EDKEN	110
												VEETS	111
												DVSLA	112
												LQDVS	112
												LRREV	112
												PAPKE	113
												SVPST	113
												ALTSR	114
												TTPVP	114
												TSLSG	114
												AVQVL	114
												VSPLS	115
												RLLAV	116
												TANLA	116
												RSTAA	116
												TVSTG	116
												LASSN	118
												SSSTI	118
												TLAVS	118
												LKRFL	119
												PTTPP	120
												SGTGG	121
												QAPSL	122
												GLTPS	122
												LPSEA	123
												PVPVS	123
												TVTTV	125
												TAASA	125
												PGSPQ	126
												STLRL	126
												PSVLQ	127
												TPTTS	129
												SPLSD	129
												STTLL	129
												LQPPT	130
												SRLSL	131
												TTVTT	132
												NEVSS	133
												SSTIS	134
												PLVSG	134
												QLLRR	134
												LLNKL	135
												LKEKF	135
												PATPL	135
												SLVEE	136
												TSRLL	138
												TLLQQ	138
												SIVSL	139
												EDEDK	139
												GGLGI	140
												TPATP	140

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
												PVPSV	141
												PSTSL	142
												PPVPV	143
												GAPTS	146
												STSET	147
												LQPLA	147
												RCYSS	147
												PPAPK	150
												LKLLG	151
												ESEDS	153
												IEKLL	153
												TSTTP	154
												SVDSA	154
												KRRKR	155
												VEVGR	156
												VSLAA	156
												LNDSS	157
												LLRRE	157
												SGSTA	159
												PSVPS	159
												VLQSS	159
												KQQLL	159
												LCDLL	159
												TVTSS	160
												VTTVT	161
												LQGSV	161
												EEKQR	162
												LLGST	163
												DPSVL	164
												AAFGL	164
												LQSSL	164
												LSDIS	165
												LLSKL	165
												TAAAL	166
												NLKEK	167
												PGSRP	167
												KLLSK	168
												RRLSS	169
												VPSVP	171
												LLAVG	174
												QPPPG	175
												EGVSE	175
												GSGST	176
												QQLLR	176
												GSGTG	178
												KLLGS	178
												SEDSG	181
												TPSGS	183
												PAAAT	183
												PLLKL	183
												AGAVG	184
												FLTAL	186
												RPLLL	186
												VSLVE	187

HCMV		*C. tetani*		*C. diphtheriae*		*B. pertussis*		*T. gondii*		*T. cruzi*		*H. sapiens*	
												AASPT	188
												RKRRK	191
												TLEDL	196
												STAAA	197
												GTGSG	198
												DVSLE	198
												SRLLA	200
												LLQAG	200
												KKRKL	202
												LEDLL	202
												TPVPS	208
												LLSVS	209
												LSKLL	216
												STSLS	220
												ILVLL	220
												PTTSS	221
												ASPTS	228
												AVALG	228
												RKKRK	230
												STSTT	232
												DSSEE	233
												TTSST	235
												VVLLL	235
												DPAAA	244
												KRKKR	245
												TSSTP	252
												LPPVP	254
												PPTPA	259
												VPGSP	261
												LQAGL	276
												TPPAP	283
												LRKRR	283
												LSSST	297
												LLKLL	319
												SKVVS	324
												TSSTS	333
												PLLLS	339
												EKLLS	348
												SEEED	348
												PPPGG	369
												VLLLV	376
												QDPQE	381
												TLSSS	383
												SGSGG	386
												SSTST	393
												LLLSV	396
												LQPPP	426
												IILVL	448
												SGGSG	537
												SSGSG	549
												KPSPW	552
												SSEEE	729
												GGSGG	860
												GSGGG	868

HCMV		***C. tetani***		***C. diphtheriae***		***B. pertussis***		***T. gondii***		***T. cruzi***		***H. sapiens***	
												SDVSL	1064
												LVLLL	1079
												PPLLI	1088
												NNISP	1210
												EEEDE	1311
												YTAVS	3240
Total Occurrences:													
	271		1193		1222		5656		18181		17681		102095

Table S2. Distribution through the human proteome of the 29 pentapeptides common to the analysed pathogens.

Pentapeptide	**Human Protein**
DLLIR	SPA13. Putative serpin A13 precursor
DLLIR	SEP12. Septin-12
DLLIR	SEPT9. Septin-9
LIPIV	O11HC. Olfactory receptor 11H12
LIPIV	CLPP. ATP-dependent Clp protease proteolytic subunit, mitochondrial precursor
LIPIV	S4A8. Electroneutral sodium bicarbonate exchanger 1
LIPIV	O11H1. Olfactory receptor 11H1
LIPIV	O11G2. Olfactory receptor 11G2
LIPIV	O11H2. Olfactory receptor 11H2
LIPIV	PP4RL. Putative serine/threonine-protein phosphatase 4 regulatory subunit 1-like
SLCAA	HXK2. Hexokinase-2
SLCAA	CI064. UPF0553 protein C9orf64
SLCAA	RNLS. Renalase precursor
SLCAA	NALP9. NACHT, LRR and PYD domains-containing protein 9
SLCAA	CABL2. CDK5 and ABL1 enzyme substrate 2
SLCAA	FBW1B. F-box/WD repeat-containing protein 11
SLCAA	FBW1A. F-box/WD repeat-containing protein 1A
TGSGT	RGS9. Regulator of G-protein signaling 9
TGSGT	GLCE. D-glucuronyl C5-epimerase
TGSGT	FUMH. Fumarate hydratase, mitochondrial precursor
TGSGT	CHIT1. Chitotriosidase-1 precursor
TGSGT	NACA. Nascent polypeptide-associated complex subunit alpha
TGSGT	K1614. Uncharacterized protein KIAA1614
TGSGT	UBN2. Ubinuclein-2
TGSGT	MUC19. Mucin-19 precursor
TGSGT	EMIL2. EMILIN-2 precursor
TGSGT	NACP1. Putative nascent polypeptide-associated complex subunit alpha-like protein
TGSGT	NACA2. Nascent polypeptide-associated complex subunit alpha-2
TGSGT	CRNN. Cornulin
TGSGT	SRRM2. Serine/arginine repetitive matrix protein 2
STIST	GLI3. Transcriptional activator GLI3
STIST	CD44. CD44 antigen precursor
STIST	Z280A. Zinc finger protein 280A
STIST	RPRD2. Regulation of nuclear pre-mRNA domain-containing protein 2
STIST	PKHL1. Fibrocystin-L precursor
STIST	PASD1. Circadian clock protein PASD1
STIST	MUC15. Mucin-15 precursor
STIST	ZN596. Zinc finger protein 596
STIST	SH3R3. SH3 domain-containing RING finger protein 3
STIST	CNKR2. Connector enhancer of kinase suppressor of ras 2
STIST	SENP7. Sentrin-specific protease 7
STIST	SHAN3. SH3 and multiple ankyrin repeat domains protein 3

STIST	F1142. Protein FAM114A2
STIST	SHAN2. SH3 and multiple ankyrin repeat domains protein 2
STIST	EFR3B. Protein EFR3 homolog B
STIST	NUBP2. Cytosolic Fe-S cluster assembly factor NUBP2
TASTT	MUC22. Mucin-22 precursor
TASTT	ZN207. BUB3-interacting and GLEBS motif-containing protein ZNF207
TASTT	IGHE. Immunoglobulin heavy constant epsilon
TASTT	GPSM2. G-protein-signaling modulator 2
TASTT	MUC5A. Mucin-5AC precursor
TASTT	ROR2. Tyrosine-protein kinase transmembrane receptor ROR2 precursor
TASTT	BPTF. Nucleosome-remodeling factor subunit BPTF
TASTT	AGRG4. Adhesion G-protein coupled receptor G4 precursor
TASTT	PRP31. U4/U6 small nuclear ribonucleoprotein Prp31
TASTT	TM158. Transmembrane protein 158 precursor
TASTT	SIG12. Sialic acid-binding Ig-like lectin 12 precursor
TASTT	EYA1. Eyes absent homolog 1
TASTT	MUC13. Mucin-13 precursor
TASTT	WNK1. Serine/threonine-protein kinase WNK1
TASTT	TSH2. Teashirt homolog 2
TASTT	MTUS1. Microtubule-associated tumor suppressor 1
ANLAS	ZEB1. Zinc finger E-box-binding homeobox 1
ANLAS	CATK. Cathepsin K precursor
ANLAS	INSM1. Insulinoma-associated protein 1
ANLAS	PAX5. Paired box protein Pax-5
ANLAS	LRC32. Leucine-rich repeat-containing protein 32 precursor
ANLAS	NTCP5. Sodium/bile acid cotransporter 5 precursor
ANLAS	MROH1. Maestro heat-like repeat-containing protein family member 1
ANLAS	BEST4. Bestrophin-4
ANLAS	S3TC1. SH3 domain and tetratricopeptide repeat-containing protein 1
ANLAS	CR012. Uncharacterized protein C18orf12
ANLAS	MSLNL. Mesothelin-like protein precursor
ANLAS	INSM2. Insulinoma-associated protein 2
ANLAS	CDC5L. Cell division cycle 5-like protein
ANLAS	ADT4. ADP/ATP translocase 4
ANLAS	SFR19. Splicing factor, arginine/serine-rich 19
ANLAS	S40A1. Solute carrier family 40 member 1
ANLAS	SRRM2. Serine/arginine repetitive matrix protein 2
RAAKR	E41L2. Band 4.1-like protein 2
RAAKR	TPPP. Tubulin polymerization-promoting protein
RAAKR	NOP2. Probable 28S rRNA (cytosine(4447)-C(5))-methyltransferase
RAAKR	F193A. Protein FAM193A
RAAKR	AOXA. Aldehyde oxidase
RAAKR	HERC1. Probable E3 ubiquitin-protein ligase HERC1
RAAKR	REXO1. RNA exonuclease 1 homolog
RAAKR	F161B. Protein FAM161B
RAAKR	F193B. Protein FAM193B
RAAKR	AGAP2. Arf-GAP with GTPase, ANK repeat and PH domain-containing protein 2
RAAKR	ENKD1. Enkurin domain-containing protein 1
RAAKR	ZBTB4. Zinc finger and BTB domain-containing protein 4
RAAKR	CHD7. Chromodomain-helicase-DNA-binding protein 7
RAAKR	STAG3. Cohesin subunit SA-3
RAAKR	RT33. 28S ribosomal protein S33, mitochondrial
RAAKR	E41L3. Band 4.1-like protein 3
RAAKR	MOFA1. MORF4 family-associated protein 1
VALGT	PTPRT. Receptor-type tyrosine-protein phosphatase T precursor

VALGT	P52K. 52 kDa repressor of the inhibitor of the protein kinase
VALGT	ANPRB. Atrial natriuretic peptide receptor 2 precursor
VALGT	NAC1. Sodium/calcium exchanger 1 precursor
VALGT	EFTS. Elongation factor Ts, mitochondrial precursor
VALGT	ROM1. Rod outer segment membrane protein 1
VALGT	PRRT3. Proline-rich transmembrane protein 3 precursor
VALGT	FDX2. Ferredoxin-2, mitochondrial precursor
VALGT	CC129. Coiled-coil domain-containing protein 129
VALGT	ADAD2. Adenosine deaminase domain-containing protein 2
VALGT	TOP1M. DNA topoisomerase I, mitochondrial precursor
VALGT	MARC2. Mitochondrial amidoxime reducing component 2 precursor
VALGT	KCNA7. Potassium voltage-gated channel subfamily A member 7
VALGT	TX101. Testis-expressed protein 101 precursor
VALGT	CAHM2. Calcium homeostasis modulator protein 2
VALGT	NCK5L. Nck-associated protein 5-like
VALGT	ENH1. HERV-H_2q24.3 provirus ancestral Env polyprotein precursor
VALGT	NAC2. Sodium/calcium exchanger 2 precursor
VALGT	PLAP. Phospholipase A-2-activating protein
TAASA	GAK. Cyclin-G-associated kinase
TAASA	MED24. Mediator of RNA polymerase II transcription subunit 24
TAASA	BEST1. Bestrophin-1
TAASA	PTPRG. Receptor-type tyrosine-protein phosphatase gamma precursor
TAASA	KMT2A. Histone-lysine N-methyltransferase 2A
TAASA	KDM3B. Lysine-specific demethylase 3B
TAASA	SYVN1. E3 ubiquitin-protein ligase synoviolin precursor
TAASA	PRSR1. Proline and serine-rich protein 1
TAASA	AADAT. Kynurenine/alpha-aminoadipate aminotransferase, mitochondrial precursor
TAASA	FIG4. Polyphosphoinositide phosphatase
TAASA	SYN2. Synapsin-2
TAASA	REPS1. RalBP1-associated Eps domain-containing protein 1
TAASA	AGAP2. Arf-GAP with GTPase, ANK repeat and PH domain-containing protein 2
TAASA	ZFHX2. Zinc finger homeobox protein 2
TAASA	KLH25. Kelch-like protein 25
TAASA	ARV1. Protein ARV1
TAASA	UBP36. Ubiquitin carboxyl-terminal hydrolase 36
TAASA	FPRP. Prostaglandin F2 receptor negative regulator precursor
TAASA	RHCG. Ammonium transporter Rh type C
TAASA	CRLS1. Cardiolipin synthase (CMP-forming)
TAASA	TLN1. Talin-1
QPPTP	F149A. Protein FAM149A
QPPTP	PLD2. Phospholipase D2
QPPTP	ARHGA. Rho guanine nucleotide exchange factor 10
QPPTP	BRD4. Bromodomain-containing protein 4
QPPTP	ONCM. Oncostatin-M precursor
QPPTP	MAPK2. MAP kinase-activated protein kinase 2
QPPTP	EVA1C. Protein eva-1 homolog C precursor
QPPTP	SCRIB. Protein scribble homolog
QPPTP	ZN628. Zinc finger protein 628
QPPTP	XKR6. XK-related protein 6
QPPTP	TTBK1. Tau-tubulin kinase 1
QPPTP	EFCB6. EF-hand calcium-binding domain-containing protein 6
QPPTP	RHBD2. Rhomboid domain-containing protein 2
QPPTP	C2D1A. Coiled-coil and C2 domain-containing protein 1A
QPPTP	LARP1. La-related protein 1
QPPTP	I2BP2. Interferon regulatory factor 2-binding protein 2

QPPTP	PACS2. Phosphofurin acidic cluster sorting protein 2
QPPTP	AGRG4. Adhesion G-protein coupled receptor G4 precursor
QPPTP	KLDC1. Kelch domain-containing protein 1
QPPTP	REQU. Zinc finger protein ubi-d4
QPPTP	SHD. SH2 domain-containing adapter protein D
QPPTP	EGLN2. Egl nine homolog 2
QPPTP	ARHGH. Rho guanine nucleotide exchange factor 17
QPPTP	RHG39. Rho GTPase-activating protein 39
QPPTP	SPTN4. Spectrin beta chain, non-erythrocytic 4
QPPTP	NECT3. Nectin-3 precursor
QPPTP	MAGL2. MAGE-like protein 2
QPPTP	TNR6B. Trinucleotide repeat-containing gene 6B protein
TTVTT	P121B. Putative nuclear envelope pore membrane protein POM 121B
TTVTT	P121C. Nuclear envelope pore membrane protein POM 121C
TTVTT	KRA97. Keratin-associated protein 9-7
TTVTT	KRA91. Keratin-associated protein 9-1
TTVTT	MUC22. Mucin-22 precursor
TTVTT	C2C2L. Phospholipid transfer protein C2CD2L
TTVTT	ANR17. Ankyrin repeat domain-containing protein 17
TTVTT	HEP2. Heparin cofactor 2 precursor
TTVTT	CEAM5. Carcinoembryonic antigen-related cell adhesion molecule 5 precursor
TTVTT	PO2F2. POU domain, class 2, transcription factor 2
TTVTT	DMD. Dystrophin
TTVTT	2ABA. Serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B alpha isoform
TTVTT	MKRN4. Putative E3 ubiquitin-protein ligase makorin-4
TTVTT	ANR12. Ankyrin repeat domain-containing protein 12
TTVTT	SE6L2. Seizure 6-like protein 2 precursor
TTVTT	RNF44. RING finger protein 44
TTVTT	HUWE1. E3 ubiquitin-protein ligase HUWE1
TTVTT	HIPK1. Homeodomain-interacting protein kinase 1
TTVTT	PORIM. Porimin precursor
TTVTT	OR5H6. Olfactory receptor 5H6
TTVTT	TAF4B. Transcription initiation factor TFIID subunit 4B
TTVTT	P121A. Nuclear envelope pore membrane protein POM 121
TTVTT	KRA99. Keratin-associated protein 9-9
TTVTT	KRA98. Keratin-associated protein 9-8
TTVTT	KRA94. Keratin-associated protein 9-4
TTVTT	KRA93. Keratin-associated protein 9-3
TTVTT	KRA92. Keratin-associated protein 9-2
TTVTT	TM245. Transmembrane protein 245
TTVTT	COG4. Conserved oligomeric Golgi complex subunit 4
TTVTT	CC180. Coiled-coil domain-containing protein 180
LLNKL	HS3S1. Heparan sulfate glucosamine 3-O-sulfotransferase 1 precursor
LLNKL	MYO1B. Unconventional myosin-Ib
LLNKL	FRYL. Protein furry homolog-like
LLNKL	TTK. Dual specificity protein kinase TTK
LLNKL	SOS2. Son of sevenless homolog 2
LLNKL	NNTM. NAD(P) transhydrogenase, mitochondrial precursor
LLNKL	ITPR1. Inositol 1,4,5-trisphosphate receptor type 1
LLNKL	DIP2A. Disco-interacting protein 2 homolog A
LLNKL	KLH22. Kelch-like protein 22
LLNKL	FSIP2. Fibrous sheath-interacting protein 2
LLNKL	PR14L. Protein PRR14L
LLNKL	RN213. E3 ubiquitin-protein ligase RNF213
LLNKL	NEPRO. Nucleolus and neural progenitor protein

LLNKL	ARHGI. Rho guanine nucleotide exchange factor 18
LLNKL	AN13D. Ankyrin repeat domain-containing protein 13D
LLNKL	DHX29. ATP-dependent RNA helicase DHX29
LLNKL	PPR42. Protein phosphatase 1 regulatory subunit 42
LLNKL	IFNE. Interferon epsilon precursor
LLNKL	NOSTN. Nostrin
LLNKL	LNX1. E3 ubiquitin-protein ligase LNX
LLNKL	SKA1. Spindle and kinetochore-associated protein 1
LLNKL	MAGE1. Melanoma-associated antigen E1
LLNKL	DD19A. ATP-dependent RNA helicase DDX19A
LLNKL	DIP2B. Disco-interacting protein 2 homolog B
LLNKL	IF172. Intraflagellar transport protein 172 homolog
LLNKL	DDX25. ATP-dependent RNA helicase DDX25
LLNKL	SHRM4. Protein Shroom4
LLNKL	STRP2. Striatin-interacting protein 2
LLNKL	DD19B. ATP-dependent RNA helicase DDX19B
LLNKL	S12A7. Solute carrier family 12 member 7
STSET	F221B. Protein FAM221B
STSET	RGPD3. RanBP2-like and GRIP domain-containing protein 3
STSET	RGPD8. RANBP2-like and GRIP domain-containing protein 8
STSET	RHG06. Rho GTPase-activating protein 6
STSET	DC8L2. DDB1- and CUL4-associated factor 8-like protein 2
STSET	RGPD1. RANBP2-like and GRIP domain-containing protein 1
STSET	RGPD2. RANBP2-like and GRIP domain-containing protein 2
STSET	PEPA4. Pepsin A-4 precursor
STSET	PEPA3. Pepsin A-3 precursor
STSET	PEPA5. Pepsin A-5 precursor
STSET	O10J1. Olfactory receptor 10J1
STSET	PK3CB. Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit beta isoform
STSET	ABL2. Abelson tyrosine-protein kinase 2
STSET	RBP2. E3 SUMO-protein ligase RanBP2
STSET	ECHB. Trifunctional enzyme subunit beta, mitochondrial precursor
STSET	ELL. RNA polymerase II elongation factor ELL
STSET	CSPP1. Centrosome and spindle pole-associated protein 1
STSET	SLNL1. Schlafen-like protein 1
STSET	WDR81. WD repeat-containing protein 81 precursor
STSET	AXDN1. Axonemal dynein light chain domain-containing protein 1
STSET	XRRA1. X-ray radiation resistance-associated protein 1
STSET	RGPD4. RanBP2-like and GRIP domain-containing protein 4
STSET	RTTN. Rotatin
STSET	DOCK4. Dedicator of cytokinesis protein 4
STSET	O10R2. Olfactory receptor 10R2
STSET	SSH3. Protein phosphatase Slingshot homolog 3
STSET	SPAG5. Sperm-associated antigen 5
STSET	RGPD5. RANBP2-like and GRIP domain-containing protein 5/6
STSET	F234A. Protein FAM234A
STSET	SMDC1. SAYSvFN domain-containing protein 1
STSET	MO4L1. Mortality factor 4-like protein 1
STSET	ATD2B. ATPase family AAA domain-containing protein 2B
STSET	ATS5. A disintegrin and metalloproteinase with thrombospondin motifs 5 precursor
FLTAL	RPC9. DNA-directed RNA polymerase III subunit RPC9
FLTAL	IGSF6. Immunoglobulin superfamily member 6 precursor
FLTAL	K2C1. Keratin, type II cytoskeletal 1
FLTAL	DHB1. Estradiol 17-beta-dehydrogenase 1
FLTAL	MAG. Myelin-associated glycoprotein precursor

FLTAL	CRHBP. Corticotropin-releasing factor-binding protein precursor
FLTAL	AKT1. RAC-alpha serine/threonine-protein kinase
FLTAL	AKT2. RAC-beta serine/threonine-protein kinase
FLTAL	DCD. Dermcidin precursor
FLTAL	IFIT5. Interferon-induced protein with tetratricopeptide repeats 5
FLTAL	DOXA1. Dual oxidase maturation factor 1
FLTAL	ZN831. Zinc finger protein 831
FLTAL	CD022. Uncharacterized protein C4orf22
FLTAL	ZNT10. Zinc transporter 10
FLTAL	COX15. Cytochrome c oxidase assembly protein COX15 homolog
FLTAL	OTOP1. Otopetrin-1
FLTAL	MON2. Protein MON2 homolog
FLTAL	TTC7B. Tetratricopeptide repeat protein 7B
FLTAL	TRI59. Tripartite motif-containing protein 59
FLTAL	PEX5R. PEX5-related protein
FLTAL	C56D1. Cytochrome b561 domain-containing protein 1
FLTAL	O11H6. Olfactory receptor 11H6
FLTAL	PDC6I. Programmed cell death 6-interacting protein
FLTAL	NALP7. NACHT, LRR and PYD domains-containing protein 7
FLTAL	RUS1. RUS1 family protein C16orf58
FLTAL	S39AD. Zinc transporter ZIP13
FLTAL	RN145. RING finger protein 145
FLTAL	RT63. Ribosomal protein 63, mitochondrial
FLTAL	DBND2. Dysbindin domain-containing protein 2
FLTAL	RPAP1. RNA polymerase II-associated protein 1
FLTAL	SETD2. Histone-lysine N-methyltransferase SETD2
FLTAL	SPTN5. Spectrin beta chain, non-erythrocytic 5
FLTAL	NALP2. NACHT, LRR and PYD domains-containing protein 2
FLTAL	TM181. Transmembrane protein 181
FLTAL	TTC7A. Tetratricopeptide repeat protein 7A
FLTAL	FADS3. Fatty acid desaturase 3
STAAA	T131L. Transmembrane protein 131-like precursor
STAAA	S38A8. Putative sodium-coupled neutral amino acid transporter 8
STAAA	KCNK3. Potassium channel subfamily K member 3
STAAA	ZBT7B. Zinc finger and BTB domain-containing protein 7B
STAAA	TBCD4. TBC1 domain family member 4
STAAA	RLA1. 60S acidic ribosomal protein P1
STAAA	PGCA. Aggrecan core protein precursor
STAAA	NU214. Nuclear pore complex protein Nup214
STAAA	SOX2. Transcription factor SOX-2
STAAA	ALEX. Protein ALEX
STAAA	BMPR2. Bone morphogenetic protein receptor type-2 precursor
STAAA	T132B. Transmembrane protein 132B
STAAA	T22D1. TSC22 domain family protein 1
STAAA	PCKGM. Phosphoenolpyruvate carboxykinase [GTP], mitochondrial precursor
STAAA	RBM23. Probable RNA-binding protein 23
STAAA	LBN. Limbin precursor
STAAA	RIMS1. Regulating synaptic membrane exocytosis protein 1
STAAA	HIPK1. Homeodomain-interacting protein kinase 1
STAAA	CAMKV. CaM kinase-like vesicle-associated protein
STAAA	DYHC2. Cytoplasmic dynein 2 heavy chain 1
STAAA	SMRC2. SWI/SNF complex subunit SMARCC2
STAAA	MITD1. MIT domain-containing protein 1
STAAA	PMEPA. Protein TMEPAI
STAAA	PRRC1. Protein PRRC1

STAAA	ARX. Homeobox protein ARX
STAAA	MMS19. MMS19 nucleotide excision repair protein homolog
STAAA	CT085. Uncharacterized protein C20orf85
STAAA	SPTN4. Spectrin beta chain, non-erythrocytic 4
STAAA	SFR19. Splicing factor, arginine/serine-rich 19
STAAA	TNR6C. Trinucleotide repeat-containing gene 6C protein
STAAA	CHD8. Chromodomain-helicase-DNA-binding protein 8
STAAA	TRI39. E3 ubiquitin-protein ligase TRIM39
STAAA	RTEL1. Regulator of telomere elongation helicase 1
STAAA	RHG20. Rho GTPase-activating protein 20
STAAA	DYH17. Dynein heavy chain 17, axonemal
STAAA	CDYL1. Chromodomain Y-like protein
STAAA	ADSV. Adseverin
AGAVG	SSPO. SCO-spondin precursor
AGAVG	F149A. Protein FAM149A
AGAVG	CRNS1. Carnosine synthase 1
AGAVG	PCX2. Pecanex-like protein 2
AGAVG	LRC53. Leucine-rich repeat-containing protein 53
AGAVG	KMT2D. Histone-lysine N-methyltransferase 2D
AGAVG	PM34. Peroxisomal membrane protein PMP34
AGAVG	CMC1. Calcium-binding mitochondrial carrier protein Aralar1
AGAVG	SPDEF. SAM pointed domain-containing Ets transcription factor
AGAVG	CO1A2. Collagen alpha-2(I) chain precursor
AGAVG	ACADM. Medium-chain specific acyl-CoA dehydrogenase, mitochondrial precursor
AGAVG	PZP. Pregnancy zone protein precursor
AGAVG	HHEX. Hematopoietically-expressed homeobox protein HHEX
AGAVG	APOBR. Apolipoprotein B receptor
AGAVG	TRIPC. E3 ubiquitin-protein ligase TRIP12
AGAVG	PTGR1. Prostaglandin reductase 1
AGAVG	ANKS6. Ankyrin repeat and SAM domain-containing protein 6
AGAVG	KLH34. Kelch-like protein 34
AGAVG	LIRB2. Leukocyte immunoglobulin-like receptor subfamily B member 2 precursor
AGAVG	SMG8. Protein SMG8
AGAVG	LIRB1. Leukocyte immunoglobulin-like receptor subfamily B member 1 precursor
AGAVG	PANK1. Pantothenate kinase 1
AGAVG	HYAS1. Hyaluronan synthase 1
AGAVG	NXPE3. NXPE family member 3 precursor
AGAVG	EMID1. EMI domain-containing protein 1 precursor
AGAVG	ZCCHL. Zinc finger CCCH-type antiviral protein 1-like
AGAVG	HEXI2. Protein HEXIM2
AGAVG	CSMD1. CUB and sushi domain-containing protein 1 precursor
AGAVG	ESYT1. Extended synaptotagmin-1
AGAVG	CECR6. Cat eye syndrome critical region protein 6
AGAVG	SC11C. Signal peptidase complex catalytic subunit SEC11C
AGAVG	PCX3. Pecanex-like protein 3
AGAVG	PRR36. Proline-rich protein 36
AGAVG	PKHA2. Pleckstrin homology domain-containing family A member 2
AGAVG	ZRAN1. Ubiquitin thioesterase ZRANB1
AGAVG	CMC2. Calcium-binding mitochondrial carrier protein Aralar2
AGAVG	PCDA5. Protocadherin alpha-5 precursor
AGAVG	PCDAD. Protocadherin alpha-13 precursor
ILVLL	F234B. Protein FAM234B
ILVLL	RTL1. Retrotransposon-like protein 1
ILVLL	T200C. Transmembrane protein 200C
ILVLL	CREB3. Cyclic AMP-responsive element-binding protein 3

ILVLL	CALC. Calcitonin precursor
ILVLL	CALCA. Calcitonin gene-related peptide 1 precursor
ILVLL	MET. Hepatocyte growth factor receptor precursor
ILVLL	CSF1. Macrophage colony-stimulating factor 1 precursor
ILVLL	IL7. Interleukin-7 precursor
ILVLL	LAMP2. Lysosome-associated membrane glycoprotein 2 precursor
ILVLL	PTPRA. Receptor-type tyrosine-protein phosphatase alpha precursor
ILVLL	EPOR. Erythropoietin receptor precursor
ILVLL	RFX1. MHC class II regulatory factor RFX1
ILVLL	THAS. Thromboxane-A synthase
ILVLL	GBP1. Guanylate-binding protein 1 precursor
ILVLL	CRFR1. Corticotropin-releasing factor receptor 1 precursor
ILVLL	MDHC. Malate dehydrogenase, cytoplasmic
ILVLL	BAP31. B-cell receptor-associated protein 31
ILVLL	CTR2. Cationic amino acid transporter 2
ILVLL	ANTR2. Anthrax toxin receptor 2 precursor
ILVLL	BST2. Bone marrow stromal antigen 2 precursor
ILVLL	BAMBI. BMP and activin membrane-bound inhibitor homolog precursor
ILVLL	S13A2. Solute carrier family 13 member 2
ILVLL	CRFR2. Corticotropin-releasing factor receptor 2
ILVLL	HERC1. Probable E3 ubiquitin-protein ligase HERC1
ILVLL	AOC3. Membrane primary amine oxidase
ILVLL	MBOA2. Lysophospholipid acyltransferase 2
ILVLL	TMC3. Transmembrane channel-like protein 3
ILVLL	S35F2. Solute carrier family 35 member F2
ILVLL	TM156. Transmembrane protein 156
ILVLL	SCMC3. Calcium-binding mitochondrial carrier protein SCaMC-3
ILVLL	STRA6. Stimulated by retinoic acid gene 6 protein homolog
ILVLL	MCM9. DNA helicase MCM9
ILVLL	ARHGC. Rho guanine nucleotide exchange factor 12
ILVLL	COPG2. Coatomer subunit gamma-2
ILVLL	EXTL2. Exostosin-like 2
ILVLL	SEC63. Translocation protein SEC63 homolog
ILVLL	COPG1. Coatomer subunit gamma-1
TAAAL	LRRD1. Leucine-rich repeat and death domain-containing protein 1
TAAAL	BTBDB. Ankyrin repeat and BTB/POZ domain-containing protein BTBD11
TAAAL	TRI66. Tripartite motif-containing protein 66
TAAAL	TBCD4. TBC1 domain family member 4
TAAAL	ENTP3. Ectonucleoside triphosphate diphosphohydrolase 3
TAAAL	NPM3. Nucleoplasmin-3
TAAAL	CCNE2. G1/S-specific cyclin-E2
TAAAL	IL1A. Interleukin-1 alpha precursor
TAAAL	MYH7. Myosin-7
TAAAL	MYH6. Myosin-6
TAAAL	PYR1. CAD protein
TAAAL	GRP75. Stress-70 protein, mitochondrial precursor
TAAAL	HUTH. Histidine ammonia-lyase
TAAAL	FOXG1. Forkhead box protein G1
TAAAL	SRPX. Sushi repeat-containing protein SRPX precursor
TAAAL	TYRO3. Tyrosine-protein kinase receptor TYRO3 precursor
TAAAL	T132B. Transmembrane protein 132B
TAAAL	EXOS6. Exosome complex component MTR3
TAAAL	UBR4. E3 ubiquitin-protein ligase UBR4
TAAAL	ZFHX4. Zinc finger homeobox protein 4
TAAAL	NT5D3. 5'-nucleotidase domain-containing protein 3

TAAAL	NRROS. Negative regulator of reactive oxygen species precursor
TAAAL	CKLF1. CKLF-like MARVEL transmembrane domain-containing protein 1
TAAAL	DSEL. Dermatan-sulfate epimerase-like protein precursor
TAAAL	ZBT38. Zinc finger and BTB domain-containing protein 38
TAAAL	F134A. Protein FAM134A
TAAAL	SPAT4. Spermatogenesis-associated protein 4
TAAAL	KLD7B. Kelch domain-containing protein 7B
TAAAL	PCD16. Protocadherin-16 precursor
TAAAL	COG8. Conserved oligomeric Golgi complex subunit 8
TAAAL	ARX. Homeobox protein ARX
TAAAL	MELPH. Melanophilin
TAAAL	HIG2A. HIG1 domain family member 2A, mitochondrial
TAAAL	ZN407. Zinc finger protein 407
TAAAL	AMPB. Aminopeptidase B
TAAAL	VISTA. V-type immunoglobulin domain-containing suppressor of T-cell activation precursor
TAAAL	TRI39. E3 ubiquitin-protein ligase TRIM39
TAAAL	ENH3. HERV-H_2q24.1 provirus ancestral Env polyprotein precursor
TAAAL	ENH1. HERV-H_2q24.3 provirus ancestral Env polyprotein precursor
TAAAL	ANO2. Anoctamin-2
TAAAL	CELR3. Cadherin EGF LAG seven-pass G-type receptor 3 precursor
TAAAL	ZBTB4. Zinc finger and BTB domain-containing protein 4
TAAAL	ZDHC8. Probable palmitoyltransferase ZDHHC8
TAAAL	SRRM2. Serine/arginine repetitive matrix protein 2
TAAAL	B3GN3. N-acetyllactosaminide beta-1,3-N-acetylglucosaminyltransferase 3
TAAAL	MYH4. Myosin-4
LEDLL	CC182. Coiled-coil domain-containing protein 182
LEDLL	ZSA5C. Putative zinc finger and SCAN domain-containing protein 5C
LEDLL	ZSA5B. Zinc finger and SCAN domain-containing protein 5B
LEDLL	ARHGB. Rho guanine nucleotide exchange factor 11
LEDLL	DNJA2. DnaJ homolog subfamily A member 2 precursor
LEDLL	GLSK. Glutaminase kidney isoform, mitochondrial precursor
LEDLL	MOS. Proto-oncogene serine/threonine-protein kinase mos
LEDLL	IGHA1. Immunoglobulin heavy constant alpha 1
LEDLL	IGHA2. Immunoglobulin heavy constant alpha 2
LEDLL	ZSA5D. Putative zinc finger and SCAN domain-containing protein 5D
LEDLL	IGA2. Immunoglobulin alpha-2 heavy chain
LEDLL	KIT. Mast/stem cell growth factor receptor Kit precursor
LEDLL	XRCC6. X-ray repair cross-complementing protein 6
LEDLL	LMNB1. Lamin-B1 precursor
LEDLL	PGS1. Biglycan precursor
LEDLL	NUP62. Nuclear pore glycoprotein p62
LEDLL	PK3CA. Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform
LEDLL	RORG. Nuclear receptor ROR-gamma
LEDLL	BPIB4. BPI fold-containing family B member 4 precursor
LEDLL	PLEC. Plectin
LEDLL	BTBDG. BTB/POZ domain-containing protein 16
LEDLL	RIC1. RAB6A-GEF complex partner protein 1
LEDLL	LRRK2. Leucine-rich repeat serine/threonine-protein kinase 2
LEDLL	CI131. Uncharacterized protein C9orf131
LEDLL	KSR2. Kinase suppressor of Ras 2
LEDLL	MIER3. Mesoderm induction early response protein 3
LEDLL	DHX29. ATP-dependent RNA helicase DHX29
LEDLL	DNJB7. DnaJ homolog subfamily B member 7
LEDLL	LBN. Limbin precursor
LEDLL	T53I2. Tumor protein p53-inducible nuclear protein 2

LEDLL	MROH1. Maestro heat-like repeat-containing protein family member 1
LEDLL	O10X1. Olfactory receptor 10X1
LEDLL	TBCK. TBC domain-containing protein kinase-like protein
LEDLL	NELFB. Negative elongation factor B
LEDLL	ABTB1. Ankyrin repeat and BTB/POZ domain-containing protein 1
LEDLL	CIDEC. Cell death activator CIDE-3
LEDLL	LRRC7. Leucine-rich repeat-containing protein 7
LEDLL	ARHGH. Rho guanine nucleotide exchange factor 17
LEDLL	ZSA5A. Zinc finger and SCAN domain-containing protein 5A
LEDLL	SPC1L. Speriolin-like protein
LEDLL	BL1S4. Biogenesis of lysosome-related organelles complex 1 subunit 4
LEDLL	CAMP3. Calmodulin-regulated spectrin-associated protein 3
LEDLL	MTUS1. Microtubule-associated tumor suppressor 1
LEDLL	MACF1. Microtubule-actin cross-linking factor 1, isoforms 1/2/3/5
LEDLL	ENTP4. Ectonucleoside triphosphate diphosphohydrolase 4
LEDLL	KCNK7. Potassium channel subfamily K member 7
LLSVS	TMM8B. Transmembrane protein 8B
LLSVS	ARRD5. Arrestin domain-containing protein 5
LLSVS	O5H14. Olfactory receptor 5H14
LLSVS	O6C65. Olfactory receptor 6C65
LLSVS	CI172. Uncharacterized protein C9orf172
LLSVS	FSCN2. Fascin-2
LLSVS	AT8B3. Phospholipid-transporting ATPase IK
LLSVS	WDR1. WD repeat-containing protein 1
LLSVS	EED. Polycomb protein EED
LLSVS	5HT3B. 5-hydroxytryptamine receptor 3B precursor
LLSVS	PCCA. Propionyl-CoA carboxylase alpha chain, mitochondrial precursor
LLSVS	O5AC1. Olfactory receptor 5AC1
LLSVS	HMN4. Humanin-like 4
LLSVS	OR5H8. Olfactory receptor 5H8
LLSVS	COBA2. Collagen alpha-2(XI) chain precursor
LLSVS	FAAA. Fumarylacetoacetase
LLSVS	ITA6. Integrin alpha-6 precursor
LLSVS	ADA1D. Alpha-1D adrenergic receptor
LLSVS	COFA1. Collagen alpha-1(XV) chain precursor
LLSVS	NLRP6. NACHT, LRR and PYD domains-containing protein 6
LLSVS	ROR2. Tyrosine-protein kinase transmembrane receptor ROR2 precursor
LLSVS	WASC5. WASH complex subunit 5
LLSVS	RLF. Zinc finger protein Rlf
LLSVS	HERC1. Probable E3 ubiquitin-protein ligase HERC1
LLSVS	QSER1. Glutamine and serine-rich protein 1
LLSVS	AAK1. AP2-associated protein kinase 1
LLSVS	KCP3. Keratinocyte-associated protein 3
LLSVS	GRHL2. Grainyhead-like protein 2 homolog
LLSVS	BCAP. Phosphoinositide 3-kinase adapter protein 1
LLSVS	PREX2. Phosphatidylinositol 3,4,5-trisphosphate-dependent Rac exchanger 2 protein
LLSVS	FAKD5. FAST kinase domain-containing protein 5, mitochondrial precursor
LLSVS	MFN1. Mitofusin-1
LLSVS	F134A. Protein FAM134A
LLSVS	RN214. RING finger protein 214
LLSVS	O51S1. Olfactory receptor 51S1
LLSVS	OR5H6. Olfactory receptor 5H6
LLSVS	OR5H2. Olfactory receptor 5H2
LLSVS	PCD19. Protocadherin-19 precursor
LLSVS	ARC1A. Actin-related protein 2/3 complex subunit 1A

LLSVS	CLP1. Polyribonucleotide 5'-hydroxyl-kinase Clp1
LLSVS	UBP47. Ubiquitin carboxyl-terminal hydrolase 47
LLSVS	WDR24. WD repeat-containing protein 24
LLSVS	SPS2. Selenide, water dikinase 2
LLSVS	DYH6. Dynein heavy chain 6, axonemal
LLSVS	RBP17. Ran-binding protein 17
LLSVS	BRE. BRCA1-A complex subunit BRE
LLSVS	O5AC2. Olfactory receptor 5AC2
LLSVS	FACE2. CAAX prenyl protease 2
LLSVS	TMM98. Transmembrane protein 98
AVALG	PP13G. Protein phosphatase 1 regulatory subunit 3G
AVALG	RFXK. DNA-binding protein RFXANK
AVALG	TPSN. Tapasin precursor
AVALG	ADCY6. Adenylate cyclase type 6
AVALG	HTRA2. Serine protease HTRA2, mitochondrial precursor
AVALG	O10H2. Olfactory receptor 10H2
AVALG	PRAF2. PRA1 family protein 2
AVALG	IPO13. Importin-13
AVALG	A1BG. Alpha-1B-glycoprotein precursor
AVALG	THIK. 3-ketoacyl-CoA thiolase, peroxisomal precursor
AVALG	HCLS1. Hematopoietic lineage cell-specific protein
AVALG	MDR3. Phosphatidylcholine translocator ABCB4
AVALG	TPOR. Thrombopoietin receptor precursor
AVALG	SKOR1. SKI family transcriptional corepressor 1
AVALG	KMT2A. Histone-lysine N-methyltransferase 2A
AVALG	ROM1. Rod outer segment membrane protein 1
AVALG	MADCA. Mucosal addressin cell adhesion molecule 1 precursor
AVALG	FKBP8. Peptidyl-prolyl cis-trans isomerase FKBP8
AVALG	CCD57. Coiled-coil domain-containing protein 57
AVALG	PRRT3. Proline-rich transmembrane protein 3 precursor
AVALG	MDH1B. Putative malate dehydrogenase 1B
AVALG	CA167. Uncharacterized protein C1orf167
AVALG	TTBK1. Tau-tubulin kinase 1
AVALG	IFFO2. Intermediate filament family orphan 2
AVALG	MARC1. Mitochondrial amidoxime-reducing component 1
AVALG	WSCD1. WSC domain-containing protein 1
AVALG	ZN449. Zinc finger protein 449
AVALG	TXD11. Thioredoxin domain-containing protein 11
AVALG	CC129. Coiled-coil domain-containing protein 129
AVALG	ADCY4. Adenylate cyclase type 4
AVALG	PREX1. Phosphatidylinositol 3,4,5-trisphosphate-dependent Rac exchanger 1 protein
AVALG	GLMP. Glycosylated lysosomal membrane protein precursor
AVALG	B2CL2. Bcl-2-like protein 2
AVALG	MARC2. Mitochondrial amidoxime reducing component 2 precursor
AVALG	ROBO3. Roundabout homolog 3 precursor
AVALG	VTM2L. V-set and transmembrane domain-containing protein 2-like protein precursor
AVALG	HHIP. Hedgehog-interacting protein precursor
AVALG	S39A3. Zinc transporter ZIP3
AVALG	UN93B. Protein unc-93 homolog B1
AVALG	O51I2. Olfactory receptor 51I2
AVALG	SLAP2. Src-like-adapter 2
AVALG	ANRA2. Ankyrin repeat family A protein 2
AVALG	NCK5L. Nck-associated protein 5-like
AVALG	SIAS. Sialic acid synthase
AVALG	TLR9. Toll-like receptor 9 precursor

AVALG	SO1C1. Solute carrier organic anion transporter family member 1C1
AVALG	K1468. LisH domain and HEAT repeat-containing protein KIAA1468
AVALG	UVRAG. UV radiation resistance-associated gene protein
AVALG	KMT2B. Histone-lysine N-methyltransferase 2B
AVALG	KCNK7. Potassium channel subfamily K member 7
VVLLL	LAMA5. Laminin subunit alpha-5 precursor
VVLLL	DHX16. Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX16
VVLLL	PLMN. Plasminogen precursor
VVLLL	ALBU. Serum albumin precursor
VVLLL	MIS. Muellerian-inhibiting factor precursor
VVLLL	APOA. Apolipoprotein(a) precursor
VVLLL	S352B. Solute carrier family 35 member E2B
VVLLL	GNS. N-acetylglucosamine-6-sulfatase precursor
VVLLL	COMT. Catechol O-methyltransferase
VVLLL	GUC2C. Heat-stable enterotoxin receptor precursor
VVLLL	MYP0. Myelin protein P0 precursor
VVLLL	EPHA2. Ephrin type-A receptor 2 precursor
VVLLL	EPHA8. Ephrin type-A receptor 8 precursor
VVLLL	FCERG. High affinity immunoglobulin epsilon receptor subunit gamma precursor
VVLLL	BKRB2. B2 bradykinin receptor
VVLLL	SC5A2. Sodium/glucose cotransporter 2
VVLLL	ACV1B. Activin receptor type-1B precursor
VVLLL	BAP31. B-cell receptor-associated protein 31
VVLLL	EFNB2. Ephrin-B2 precursor
VVLLL	NOMO3. Nodal modulator 3 precursor
VVLLL	PLGB. Plasminogen-like protein B precursor
VVLLL	ADCY1. Adenylate cyclase type 1
VVLLL	PTCA. Protein tyrosine phosphatase receptor type C-associated protein
VVLLL	NOMO1. Nodal modulator 1 precursor
VVLLL	PLGA. Plasminogen-like protein A precursor
VVLLL	CH3L2. Chitinase-3-like protein 2 precursor
VVLLL	LPAL2. Putative apolipoprotein(a)-like protein 2 precursor
VVLLL	GUC2B. Guanylate cyclase activator 2B precursor
VVLLL	XKR9. XK-related protein 9
VVLLL	NOMO2. Nodal modulator 2 precursor
VVLLL	OR2BB. Olfactory receptor 2B11
VVLLL	FRY. Protein furry homolog
VVLLL	RN213. E3 ubiquitin-protein ligase RNF213
VVLLL	CNKR3. Connector enhancer of kinase suppressor of ras 3
VVLLL	S22AP. Solute carrier family 22 member 25
VVLLL	C163A. Scavenger receptor cysteine-rich type 1 protein M130 precursor
VVLLL	NAL10. NACHT, LRR and PYD domains-containing protein 10
VVLLL	LIRB2. Leukocyte immunoglobulin-like receptor subfamily B member 2 precursor
VVLLL	DYHC2. Cytoplasmic dynein 2 heavy chain 1
VVLLL	MROH1. Maestro heat-like repeat-containing protein family member 1
VVLLL	NCKX4. Sodium/potassium/calcium exchanger 4 precursor
VVLLL	OR4P4. Olfactory receptor 4P4
VVLLL	TRPM4. Transient receptor potential cation channel subfamily M member 4
VVLLL	CTR3. Cationic amino acid transporter 3
VVLLL	PRP16. Pre-mRNA-splicing factor ATP-dependent RNA helicase PRP16
VVLLL	IOD2. Type II iodothyronine deiodinase
VVLLL	CK024. Uncharacterized protein C11orf24 precursor
VVLLL	PGAP3. Post-GPI attachment to proteins factor 3 precursor
VVLLL	ZSC10. Zinc finger and SCAN domain-containing protein 10
VVLLL	ATX2. Ataxin-2

VVLLL	CECR6. Cat eye syndrome critical region protein 6
VVLLL	TNG6. Transport and Golgi organization protein 6 homolog
VVLLL	LPAR2. Lysophosphatidic acid receptor 2
VVLLL	DUOX1. Dual oxidase 1 precursor
VVLLL	LPAR3. Lysophosphatidic acid receptor 3
VVLLL	NPCL1. Niemann-Pick C1-like protein 1 precursor
VVLLL	PA24C. Cytosolic phospholipase A2 gamma precursor
VVLLL	UST. Uronyl 2-sulfotransferase
VVLLL	ENTP2. Ectonucleoside triphosphate diphosphohydrolase 2
LSSST	PKHG3. Pleckstrin homology domain-containing family G member 3
LSSST	HFM1. Probable ATP-dependent DNA helicase HFM1
LSSST	U17L5. Ubiquitin carboxyl-terminal hydrolase 17-like protein 5
LSSST	PRR32. Proline-rich protein 32
LSSST	U17LD. Ubiquitin carboxyl-terminal hydrolase 17-like protein 13
LSSST	U17LL. Ubiquitin carboxyl-terminal hydrolase 17-like protein 21
LSSST	U17LH. Ubiquitin carboxyl-terminal hydrolase 17-like protein 17
LSSST	INSR2. Insulin, isoform 2
LSSST	P3C2A. Phosphatidylinositol 4-phosphate 3-kinase C2 domain-containing subunit alpha
LSSST	DVL1. Segment polarity protein dishevelled homolog DVL-1
LSSST	EI24. Etoposide-induced protein 2.4 homolog
LSSST	WIPF1. WAS/WASL-interacting protein family member 1
LSSST	HS71A. Heat shock 70 kDa protein 1A
LSSST	HS71B. Heat shock 70 kDa protein 1B
LSSST	IRF1. Interferon regulatory factor 1
LSSST	HSP7C. Heat shock cognate 71 kDa protein
LSSST	TFE2. Transcription factor E2-alpha
LSSST	HSP76. Heat shock 70 kDa protein 6
LSSST	RFA1. Replication protein A 70 kDa DNA-binding subunit
LSSST	ZEP2. Transcription factor HIVEP2
LSSST	HS71L. Heat shock 70 kDa protein 1-like
LSSST	ARL4A. ADP-ribosylation factor-like protein 4A
LSSST	NEK4. Serine/threonine-protein kinase Nek4
LSSST	PMS2. Mismatch repair endonuclease PMS2
LSSST	HSP72. Heat shock-related 70 kDa protein 2
LSSST	DVLP1. Putative segment polarity protein dishevelled homolog DVL1P1
LSSST	ELL. RNA polymerase II elongation factor ELL
LSSST	MUC3A. Mucin-3A precursor
LSSST	U17LO. Ubiquitin carboxyl-terminal hydrolase 17-like protein 24
LSSST	AKAP6. A-kinase anchor protein 6
LSSST	DYR1A. Dual specificity tyrosine-phosphorylation-regulated kinase 1A
LSSST	IL16. Pro-interleukin-16
LSSST	UBP2L. Ubiquitin-associated protein 2-like
LSSST	GRB14. Growth factor receptor-bound protein 14
LSSST	SETB1. Histone-lysine N-methyltransferase SETDB1
LSSST	ZFHX3. Zinc finger homeobox protein 3
LSSST	KIF19. Kinesin-like protein KIF19
LSSST	CA167. Uncharacterized protein C1orf167
LSSST	NHSL1. NHS-like protein 1
LSSST	UBAP2. Ubiquitin-associated protein 2
LSSST	CRBG3. Very large A-kinase anchor protein
LSSST	FAT4. Protocadherin Fat 4 precursor
LSSST	ZN574. Zinc finger protein 574
LSSST	YP033. Putative uncharacterized protein FLJ42384
LSSST	CX067. Uncharacterized protein CXorf67
LSSST	CJ067. Uncharacterized protein C10orf67, mitochondrial precursor

LSSST	FNBP4. Formin-binding protein 4
LSSST	O52R1. Olfactory receptor 52R1
LSSST	GRHL3. Grainyhead-like protein 3 homolog
LSSST	RBM33. RNA-binding protein 33
LSSST	CC114. Coiled-coil domain-containing protein 114
LSSST	MA7D2. MAP7 domain-containing protein 2
LSSST	CDHR2. Cadherin-related family member 2 precursor
LSSST	SE6L1. Seizure 6-like protein precursor
LSSST	WNK1. Serine/threonine-protein kinase WNK1
LSSST	CAC1I. Voltage-dependent T-type calcium channel subunit alpha-1I
LSSST	COKA1. Collagen alpha-1(XX) chain precursor
LSSST	PAK5. Serine/threonine-protein kinase PAK 5
LSSST	PI4KB. Phosphatidylinositol 4-kinase beta
LSSST	LIMA1. LIM domain and actin-binding protein 1
LSSST	PILRA. Paired immunoglobulin-like type 2 receptor alpha precursor
LSSST	CRYL1. Lambda-crystallin homolog
LSSST	ZN281. Zinc finger protein 281
LSSST	ZFP37. Zinc finger protein 37 homolog
LLKLL	SERC4. Serine incorporator 4
LLKLL	CHD2. Chromodomain-helicase-DNA-binding protein 2
LLKLL	BTAF1. TATA-binding protein-associated factor 172
LLKLL	ZZEF1. Zinc finger ZZ-type and EF-hand domain-containing protein 1
LLKLL	CAC1G. Voltage-dependent T-type calcium channel subunit alpha-1G
LLKLL	DJC13. DnaJ homolog subfamily C member 13
LLKLL	GGYF1. GRB10-interacting GYF protein 1
LLKLL	CLPX. ATP-dependent Clp protease ATP-binding subunit clpX-like, mitochondrial precursor
LLKLL	CAC1H. Voltage-dependent T-type calcium channel subunit alpha-1H
LLKLL	ABHGA. Protein ABHD16A
LLKLL	NEP. Neprilysin
LLKLL	LSHR. Lutropin-choriogonadotropic hormone receptor precursor
LLKLL	UBA7. Ubiquitin-like modifier-activating enzyme 7
LLKLL	STT3A. Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3A
LLKLL	CP2J2. Cytochrome P450 2J2
LLKLL	MTCP1. Protein p13 MTCP-1
LLKLL	BPIB3. BPI fold-containing family B member 3 precursor
LLKLL	MDM2. E3 ubiquitin-protein ligase Mdm2
LLKLL	FOLC. Folylpolyglutamate synthase, mitochondrial precursor
LLKLL	TARB1. Probable methyltransferase TARBP1
LLKLL	TNK1. Non-receptor tyrosine-protein kinase TNK1
LLKLL	RHG19. Rho GTPase-activating protein 19
LLKLL	FAKD3. FAST kinase domain-containing protein 3, mitochondrial precursor
LLKLL	INF2. Inverted formin-2
LLKLL	T10IP. Testis-specific protein 10-interacting protein
LLKLL	MTEF2. Transcription termination factor 2, mitochondrial precursor
LLKLL	MPP7. MAGUK p55 subfamily member 7
LLKLL	VP13D. Vacuolar protein sorting-associated protein 13D
LLKLL	CCD30. Coiled-coil domain-containing protein 30
LLKLL	KRBA2. KRAB-A domain-containing protein 2
LLKLL	ANKAR. Ankyrin and armadillo repeat-containing protein
LLKLL	SH3R1. E3 ubiquitin-protein ligase SH3RF1
LLKLL	MD12L. Mediator of RNA polymerase II transcription subunit 12-like protein
LLKLL	EPHX4. Epoxide hydrolase 4
LLKLL	HID1. Protein HID1
LLKLL	DYH10. Dynein heavy chain 10, axonemal
LLKLL	ANR29. Ankyrin repeat domain-containing protein 29

LLKLL	SIMC1. SUMO-interacting motif-containing protein 1
LLKLL	ARMC2. Armadillo repeat-containing protein 2
LLKLL	LINES. Protein Lines homolog 1
LLKLL	DLG5. Disks large homolog 5
LLKLL	SH3R3. SH3 domain-containing RING finger protein 3
LLKLL	MRP2. Canalicular multispecific organic anion transporter 1
LLKLL	MED12. Mediator of RNA polymerase II transcription subunit 12
LLKLL	DCPS. m7GpppX diphosphatase
LLKLL	RBM18. Probable RNA-binding protein 18
LLKLL	DEPD7. DEP domain-containing protein 7
LLKLL	SPS2. Selenide, water dikinase 2
LLKLL	SPA5L. Spermatogenesis-associated protein 5-like protein 1
LLKLL	O52D1. Olfactory receptor 52D1
LLKLL	WDR26. WD repeat-containing protein 26
LLKLL	ANRA2. Ankyrin repeat family A protein 2
LLKLL	OTOF. Otoferlin
LLKLL	GID8. Glucose-induced degradation protein 8 homolog
LLKLL	GCNT4. Beta-1,3-galactosyl-O-glycosyl-glycoprotein beta-1,6-N-acetylglucosaminyltransferase 4
LLKLL	DYH1. Dynein heavy chain 1, axonemal
LLKLL	XPR1. Xenotropic and polytropic retrovirus receptor 1
LLKLL	EXTL2. Exostosin-like 2
LLKLL	ABCF2. ATP-binding cassette sub-family F member 2
LLKLL	KMT2B. Histone-lysine N-methyltransferase 2B
LLKLL	T53G5. TP53-target gene 5 protein
LLKLL	DOP2. Protein dopey-2
LLKLL	MARF1. Meiosis arrest female protein 1
LLKLL	KCTD3. BTB/POZ domain-containing protein KCTD3
PLLLS	LV312. Immunoglobulin lambda variable 3-12 precursor
PLLLS	ARRD5. Arrestin domain-containing protein 5
PLLLS	EIFCL. Eukaryotic translation initiation factor 3 subunit C-like protein
PLLLS	IPO8. Importin-8
PLLLS	AGRB2. Adhesion G protein-coupled receptor B2 precursor
PLLLS	PCDGC. Protocadherin gamma-A12 precursor
PLLLS	STK16. Serine/threonine-protein kinase 16
PLLLS	P3C2G. Phosphatidylinositol 4-phosphate 3-kinase C2 domain-containing subunit gamma
PLLLS	G6B. Protein G6b precursor
PLLLS	APOB. Apolipoprotein B-100 precursor
PLLLS	ITAV. Integrin alpha-V precursor
PLLLS	UROM. Uromodulin precursor
PLLLS	RET3. Retinol-binding protein 3 precursor
PLLLS	GTR1. Solute carrier family 2, facilitated glucose transporter member 1
PLLLS	AT2B1. Plasma membrane calcium-transporting ATPase 1
PLLLS	C2TA. MHC class II transactivator
PLLLS	MSX2. Homeobox protein MSX-2
PLLLS	OX2G. OX-2 membrane glycoprotein precursor
PLLLS	5NTC. Cytosolic purine 5'-nucleotidase
PLLLS	SPHM. N-sulphoglucosamine sulphohydrolase precursor
PLLLS	PHLD. Phosphatidylinositol-glycan-specific phospholipase D precursor
PLLLS	KPCZ. Protein kinase C zeta type
PLLLS	CLM6. CMRF35-like molecule 6 precursor
PLLLS	NU160. Nuclear pore complex protein Nup160
PLLLS	UBP4. Ubiquitin carboxyl-terminal hydrolase 4
PLLLS	SNPC2. snRNA-activating protein complex subunit 2
PLLLS	LPIN1. Phosphatidate phosphatase LPIN1
PLLLS	RN151. RING finger protein 151

PLLLS	CHD9. Chromodomain-helicase-DNA-binding protein 9
PLLLS	CLM2. CMRF35-like molecule 2 precursor
PLLLS	AT135. Probable cation-transporting ATPase 13A5
PLLLS	AT134. Probable cation-transporting ATPase 13A4
PLLLS	MRP7. Multidrug resistance-associated protein 7
PLLLS	THMS2. Protein THEMIS2
PLLLS	MEI1. Meiosis inhibitor protein 1
PLLLS	CRBG3. Very large A-kinase anchor protein
PLLLS	S35E4. Solute carrier family 35 member E4
PLLLS	SE6L2. Seizure 6-like protein 2 precursor
PLLLS	CLM4. CMRF35-like molecule 4 precursor
PLLLS	TRI67. Tripartite motif-containing protein 67
PLLLS	DAAF5. Dynein assembly factor 5, axonemal
PLLLS	EGFL6. Epidermal growth factor-like protein 6 precursor
PLLLS	LIX1L. LIX1-like protein
PLLLS	DMRTD. Doublesex- and mab-3-related transcription factor C2
PLLLS	SRRM1. Serine/arginine repetitive matrix protein 1
PLLLS	BWR1B. Beckwith-Wiedemann syndrome chromosomal region 1 candidate gene B protein
PLLLS	INT1. Integrator complex subunit 1
PLLLS	MFD4A. Major facilitator superfamily domain-containing protein 4A
PLLLS	REPS2. RalBP1-associated Eps domain-containing protein 2
PLLLS	HELQ. Helicase POLQ-like
PLLLS	CA054. Uncharacterized protein C1orf54 precursor
PLLLS	O10C1. Olfactory receptor 10C1
PLLLS	SIG10. Sialic acid-binding Ig-like lectin 10 precursor
PLLLS	EIF3C. Eukaryotic translation initiation factor 3 subunit C
PLLLS	AN30A. Ankyrin repeat domain-containing protein 30A
PLLLS	SLAF7. SLAM family member 7 precursor
PLLLS	ASH1L. Histone-lysine N-methyltransferase ASH1L
PLLLS	SEM4G. Semaphorin-4G precursor
PLLLS	CLM8. CMRF35-like molecule 8 precursor
PLLLS	TRM6. tRNA (adenine(58)-N(1))-methyltransferase non-catalytic subunit TRM6
PLLLS	ALK. ALK tyrosine kinase receptor precursor
PLLLS	SIK3. Serine/threonine-protein kinase SIK3
PLLLS	PCDA9. Protocadherin alpha-9 precursor
PLLLS	SNX8. Sorting nexin-8
VLLLV	NEMP2. Nuclear envelope integral membrane protein 2 precursor
VLLLV	TR10B. Tumor necrosis factor receptor superfamily member 10B precursor
VLLLV	EPHB6. Ephrin type-B receptor 6 precursor
VLLLV	MGA. Maltase-glucoamylase, intestinal
VLLLV	CAH12. Carbonic anhydrase 12 precursor
VLLLV	AT10A. Probable phospholipid-transporting ATPase VA
VLLLV	DSCAM. Down syndrome cell adhesion molecule precursor
VLLLV	STX10. Syntaxin-10
VLLLV	CAC1F. Voltage-dependent L-type calcium channel subunit alpha-1F
VLLLV	ANGI. Angiogenin precursor
VLLLV	CEAM5. Carcinoembryonic antigen-related cell adhesion molecule 5 precursor
VLLLV	FA7. Coagulation factor VII precursor
VLLLV	PSG1. Pregnancy-specific beta-1-glycoprotein 1 precursor
VLLLV	PSG2. Pregnancy-specific beta-1-glycoprotein 2 precursor
VLLLV	SRF. Serum response factor
VLLLV	NCAM1. Neural cell adhesion molecule 1 precursor
VLLLV	CEAM1. Carcinoembryonic antigen-related cell adhesion molecule 1 precursor
VLLLV	CD59. CD59 glycoprotein precursor
VLLLV	ITB7. Integrin beta-7 precursor

VLLLV	EPHA2. Ephrin type-A receptor 2 precursor
VLLLV	CEAM8. Carcinoembryonic antigen-related cell adhesion molecule 8 precursor
VLLLV	MA1A1. Mannosyl-oligosaccharide 1,2-alpha-mannosidase IA
VLLLV	CEAM3. Carcinoembryonic antigen-related cell adhesion molecule 3 precursor
VLLLV	S26A2. Sulfate transporter
VLLLV	PGBM. Basement membrane-specific heparan sulfate proteoglycan core protein precursor
VLLLV	PSG9. Pregnancy-specific beta-1-glycoprotein 9 precursor
VLLLV	PSG4. Pregnancy-specific beta-1-glycoprotein 4 precursor
VLLLV	PSG6. Pregnancy-specific beta-1-glycoprotein 6 precursor
VLLLV	NIPA4. Magnesium transporter NIPA4
VLLLV	PSG7. Putative pregnancy-specific beta-1-glycoprotein 7 precursor
VLLLV	TMED1. Transmembrane emp24 domain-containing protein 1 precursor
VLLLV	K0100. Protein KIAA0100 precursor
VLLLV	TRAM2. Translocating chain-associated membrane protein 2
VLLLV	PSG5. Pregnancy-specific beta-1-glycoprotein 5 precursor
VLLLV	OGR1. Ovarian cancer G-protein coupled receptor 1
VLLLV	PSG3. Pregnancy-specific beta-1-glycoprotein 3 precursor
VLLLV	SOAT. Solute carrier family 10 member 6
VLLLV	UD3A2. UDP-glucuronosyltransferase 3A2 precursor
VLLLV	SAMD9. Sterile alpha motif domain-containing protein 9
VLLLV	TSPO2. Translocator protein 2
VLLLV	C1QL3. Complement C1q-like protein 3 precursor
VLLLV	SUSD4. Sushi domain-containing protein 4 precursor
VLLLV	TUT7. Terminal uridylyltransferase 7
VLLLV	ATG9B. Autophagy-related protein 9B
VLLLV	UD3A1. UDP-glucuronosyltransferase 3A1 precursor
VLLLV	LYPD5. Ly6/PLAUR domain-containing protein 5 precursor
VLLLV	SAM9L. Sterile alpha motif domain-containing protein 9-like
VLLLV	GRM1C. GRAM domain-containing protein 1C
VLLLV	O51A4. Olfactory receptor 51A4
VLLLV	O51A2. Olfactory receptor 51A2
VLLLV	OR4A4. Putative olfactory receptor 4A4
VLLLV	OR1L1. Olfactory receptor 1L1
VLLLV	ZNT5. Zinc transporter 5
VLLLV	VTM2A. V-set and transmembrane domain-containing protein 2A precursor
VLLLV	S7A13. Solute carrier family 7 member 13
VLLLV	TRPM4. Transient receptor potential cation channel subfamily M member 4
VLLLV	SCRB1. Scavenger receptor class B member 1
VLLLV	ZDHC1. Probable palmitoyltransferase ZDHHC1
VLLLV	SC5AB. Sodium/myo-inositol cotransporter 2
VLLLV	ARAP2. Arf-GAP with Rho-GAP domain, ANK repeat and PH domain-containing protein 2
VLLLV	NCLN. Nicalin precursor
VLLLV	GIMA5. GTPase IMAP family member 5
VLLLV	PITM3. Membrane-associated phosphatidylinositol transfer protein 3
VLLLV	PITM2. Membrane-associated phosphatidylinositol transfer protein 2
VLLLV	VN1R1. Vomeronasal type-1 receptor 1
VLLLV	FNDC4. Fibronectin type III domain-containing protein 4 precursor
VLLLV	ES8L2. Epidermal growth factor receptor kinase substrate 8-like protein 2
VLLLV	CHST7. Carbohydrate sulfotransferase 7
VLLLV	S39A1. Zinc transporter ZIP1
VLLLV	T2R14. Taste receptor type 2 member 14
VLLLV	GDE1. Glycerophosphodiester phosphodiesterase 1
VLLLV	DAPLE. Protein Daple
VLLLV	GALP. Galanin-like peptide precursor
VLLLV	EXTL2. Exostosin-like 2

VLLLV	GIMA2. GTPase IMAP family member 2
VLLLV	TMEM2. Transmembrane protein 2
VLLLV	NOTC3. Neurogenic locus notch homolog protein 3 precursor
VLLLV	PSG11. Pregnancy-specific beta-1-glycoprotein 11 precursor
VLLLV	PSG8. Pregnancy-specific beta-1-glycoprotein 8 precursor
VLLLV	SC5A6. Sodium-dependent multivitamin transporter
VLLLV	CORIN. Atrial natriuretic peptide-converting enzyme
VLLLV	MYO16. Unconventional myosin-XVI
LVLLL	NBAS. Neuroblastoma-amplified sequence
LVLLL	O2A25. Olfactory receptor 2A25
LVLLL	YQ041. Putative transmembrane protein LOC100289255
LVLLL	CC85C. Coiled-coil domain-containing protein 85C
LVLLL	BLML. Putative beta-lactamase-like 1
LVLLL	FR1L4. Fer-1-like protein 4
LVLLL	NPFF. Pro-FMRFamide-related neuropeptide FF precursor
LVLLL	S22A2. Solute carrier family 22 member 2
LVLLL	COPT2. Probable low affinity copper uptake protein 2
LVLLL	ADCY6. Adenylate cyclase type 6
LVLLL	ADA23. Disintegrin and metalloproteinase domain-containing protein 23 precursor
LVLLL	MEGF6. Multiple epidermal growth factor-like domains protein 6 precursor
LVLLL	U520. U5 small nuclear ribonucleoprotein 200 kDa helicase
LVLLL	CSCL1. CSC1-like protein 1
LVLLL	OR2A4. Olfactory receptor 2A4
LVLLL	CSPG5. Chondroitin sulfate proteoglycan 5 precursor
LVLLL	PIGN. GPI ethanolamine phosphate transferase 1
LVLLL	LDOC1. Protein LDOC1
LVLLL	A2MG. Alpha-2-macroglobulin precursor
LVLLL	1A68. HLA class I histocompatibility antigen, A-68 alpha chain precursor
LVLLL	1A02. HLA class I histocompatibility antigen, A-2 alpha chain precursor
LVLLL	FETUA. Alpha-2-HS-glycoprotein precursor
LVLLL	VTDB. Vitamin D-binding protein precursor
LVLLL	INHA. Inhibin alpha chain precursor
LVLLL	1A24. HLA class I histocompatibility antigen, A-24 alpha chain precursor
LVLLL	NEP. Neprilysin
LVLLL	IBP1. Insulin-like growth factor-binding protein 1 precursor
LVLLL	PGFRB. Platelet-derived growth factor receptor beta precursor
LVLLL	ZH11B. Probable palmitoyltransferase ZDHHC11B
LVLLL	1A69. HLA class I histocompatibility antigen, A-69 alpha chain precursor
LVLLL	GP1BB. Platelet glycoprotein Ib beta chain precursor
LVLLL	BGAL. Beta-galactosidase precursor
LVLLL	TSHR. Thyrotropin receptor precursor
LVLLL	1A25. HLA class I histocompatibility antigen, A-25 alpha chain precursor
LVLLL	PZP. Pregnancy zone protein precursor
LVLLL	EPHA1. Ephrin type-A receptor 1 precursor
LVLLL	CADH3. Cadherin-3 precursor
LVLLL	CAH6. Carbonic anhydrase 6 precursor
LVLLL	PTPRE. Receptor-type tyrosine-protein phosphatase epsilon precursor
LVLLL	THAS. Thromboxane-A synthase
LVLLL	LAMA1. Laminin subunit alpha-1 precursor
LVLLL	ITB7. Integrin beta-7 precursor
LVLLL	1A23. HLA class I histocompatibility antigen, A-23 alpha chain precursor
LVLLL	1A26. HLA class I histocompatibility antigen, A-26 alpha chain precursor
LVLLL	1A34. HLA class I histocompatibility antigen, A-34 alpha chain precursor
LVLLL	1A43. HLA class I histocompatibility antigen, A-43 alpha chain precursor
LVLLL	1A66. HLA class I histocompatibility antigen, A-66 alpha chain precursor

LVLLL	PEDF. Pigment epithelium-derived factor precursor
LVLLL	MTOR. Serine/threonine-protein kinase mTOR
LVLLL	CXCL5. C-X-C motif chemokine 5 precursor
LVLLL	CAMP. Cathelicidin antimicrobial peptide precursor
LVLLL	S26A2. Sulfate transporter
LVLLL	XK. Membrane transport protein XK
LVLLL	ANTR2. Anthrax toxin receptor 2 precursor
LVLLL	T2R19. Taste receptor type 2 member 19
LVLLL	ZP1. Zona pellucida sperm-binding protein 1 precursor
LVLLL	B4GN1. Beta-1,4 N-acetylgalactosaminyltransferase 1
LVLLL	SCN7A. Sodium channel protein type 7 subunit alpha
LVLLL	MUC3A. Mucin-3A precursor
LVLLL	TGM3. Protein-glutamine gamma-glutamyltransferase E precursor
LVLLL	EP300. Histone acetyltransferase p300
LVLLL	SCAP. Sterol regulatory element-binding protein cleavage-activating protein
LVLLL	PDE3B. cGMP-inhibited 3',5'-cyclic phosphodiesterase B
LVLLL	ITA7. Integrin alpha-7 precursor
LVLLL	DCTN1. Dynactin subunit 1
LVLLL	IHH. Indian hedgehog protein precursor
LVLLL	K0100. Protein KIAA0100 precursor
LVLLL	NWD1. NACHT domain- and WD repeat-containing protein 1
LVLLL	MLC1. Membrane protein MLC1
LVLLL	PLEC. Plectin
LVLLL	CR1L. Complement component receptor 1-like protein precursor
LVLLL	T4S20. Transmembrane 4 L6 family member 20
LVLLL	F209B. Protein FAM209B precursor
LVLLL	F209A. Protein FAM209A precursor
LVLLL	TMM31. Transmembrane protein 31
LVLLL	EMARD. Endoplasmic reticulum membrane-associated RNA degradation protein
LVLLL	ANGE2. Protein angel homolog 2
LVLLL	ADCL4. Arylacetamide deacetylase-like 4
LVLLL	SUSD4. Sushi domain-containing protein 4 precursor
LVLLL	TDR10. Tudor domain-containing protein 10
LVLLL	ATG9B. Autophagy-related protein 9B
LVLLL	OLM2A. Olfactomedin-like protein 2A precursor
LVLLL	LMBD2. LMBR1 domain-containing protein 2
LVLLL	MCTP1. Multiple C2 and transmembrane domain-containing protein 1
LVLLL	CX057. Uncharacterized protein CXorf57
LVLLL	CHADL. Chondroadherin-like protein precursor
LVLLL	RETST. All-trans-retinol 13,14-reductase precursor
LVLLL	TM154. Transmembrane protein 154 precursor
LVLLL	CSPG4. Chondroitin sulfate proteoglycan 4 precursor
LVLLL	SFTA2. Surfactant-associated protein 2 precursor
LVLLL	MET7B. Methyltransferase-like protein 7B precursor
LVLLL	CP26C. Cytochrome P450 26C1
LVLLL	UNC5A. Netrin receptor UNC5A precursor
LVLLL	MBOA2. Lysophospholipid acyltransferase 2
LVLLL	TMC4. Transmembrane channel-like protein 4
LVLLL	S47A2. Multidrug and toxin extrusion protein 2
LVLLL	MPRA. Membrane progestin receptor alpha
LVLLL	KLOTB. Beta-klotho
LVLLL	TMC8. Transmembrane channel-like protein 8
LVLLL	CAD26. Cadherin-like protein 26 precursor
LVLLL	HACE1. E3 ubiquitin-protein ligase HACE1
LVLLL	GP135. Probable G-protein coupled receptor 135

LVLLL	CD033. UPF0462 protein C4orf33
LVLLL	LTBP4. Latent-transforming growth factor beta-binding protein 4 precursor
LVLLL	F16A2. FTS and Hook-interacting protein
LVLLL	AMPO. Aminopeptidase O
LVLLL	MARHA. Probable E3 ubiquitin-protein ligase MARCH10
LVLLL	DRAXI. Draxin precursor
LVLLL	SUMF1. Sulfatase-modifying factor 1 precursor
LVLLL	OR6J1. Olfactory receptor 6J1
LVLLL	O10AC. Olfactory receptor 10AC1
LVLLL	GIMA7. GTPase IMAP family member 7
LVLLL	DQX1. ATP-dependent RNA helicase DQX1
LVLLL	GEMI5. Gem-associated protein 5
LVLLL	D104A. Beta-defensin 104 precursor
LVLLL	IASPP. RelA-associated inhibitor
LVLLL	GLMP. Glycosylated lysosomal membrane protein precursor
LVLLL	CTR3. Cationic amino acid transporter 3
LVLLL	LPAR1. Lysophosphatidic acid receptor 1
LVLLL	CBP. CREB-binding protein
LVLLL	PCSK5. Proprotein convertase subtilisin/kexin type 5 precursor
LVLLL	PIGT. GPI transamidase component PIG-T precursor
LVLLL	S47A1. Multidrug and toxin extrusion protein 1
LVLLL	PED1B. PC-esterase domain-containing protein 1B
LVLLL	DYH8. Dynein heavy chain 8, axonemal
LVLLL	SAMD8. Sphingomyelin synthase-related protein 1
LVLLL	DNHD1. Dynein heavy chain domain-containing protein 1
LVLLL	COLA1. Collagen alpha-1(XXI) chain precursor
LVLLL	DCBD2. Discoidin, CUB and LCCL domain-containing protein 2 precursor
LVLLL	SMG1. Serine/threonine-protein kinase SMG1
LVLLL	XPO6. Exportin-6
LVLLL	OR2A7. Olfactory receptor 2A7
LVLLL	DIRC2. Disrupted in renal carcinoma protein 2
LVLLL	STRA6. Stimulated by retinoic acid gene 6 protein homolog
LVLLL	C1QT5. Complement C1q tumor necrosis factor-related protein 5 precursor
LVLLL	S19A3. Thiamine transporter 2
LVLLL	SEM4C. Semaphorin-4C precursor
LVLLL	GPR88. Probable G-protein coupled receptor 88
LVLLL	NMUR2. Neuromedin-U receptor 2
LVLLL	NYX. Nyctalopin precursor
LVLLL	MUC3B. Mucin-3B precursor (Fragments)
LVLLL	PED1A. PC-esterase domain-containing protein 1A
LVLLL	TMX1. Thioredoxin-related transmembrane protein 1 precursor
LVLLL	MFSD1. Major facilitator superfamily domain-containing protein 1
LVLLL	IGFR1. IGF-like family receptor 1 precursor
LVLLL	XKR8. XK-related protein 8
LVLLL	ZDH11. Probable palmitoyltransferase ZDHHC11
LVLLL	CERS4. Ceramide synthase 4
LVLLL	S39A2. Zinc transporter ZIP2
LVLLL	GP108. Protein GPR108 precursor
LVLLL	CHST7. Carbohydrate sulfotransferase 7
LVLLL	S39A1. Zinc transporter ZIP1
LVLLL	T2R14. Taste receptor type 2 member 14
LVLLL	GDE1. Glycerophosphodiester phosphodiesterase 1
LVLLL	GALP. Galanin-like peptide precursor
LVLLL	EXTL2. Exostosin-like 2
LVLLL	PCSK1. ProSAAS precursor

LVLLL	DKKL1. Dickkopf-like protein 1 precursor
LVLLL	ANGE1. Protein angel homolog 1
LVLLL	ENTP2. Ectonucleoside triphosphate diphosphohydrolase 2
LVLLL	CORIN. Atrial natriuretic peptide-converting enzyme
LVLLL	LYVE1. Lymphatic vessel endothelial hyaluronic acid receptor 1 precursor
LVLLL	AUP1. Ancient ubiquitous protein 1
LVLLL	TM14A. Transmembrane protein 14A
GGSGG	GTPBA. GTP-binding protein 10
GGSGG	PALM3. Paralemmin-3 precursor
GGSGG	ZSWM8. Zinc finger SWIM domain-containing protein 8
GGSGG	SPT5H. Transcription elongation factor SPT5
GGSGG	AGRIN. Agrin precursor
GGSGG	E2F3. Transcription factor E2F3
GGSGG	SOCS7. Suppressor of cytokine signaling 7
GGSGG	KIF3C. Kinesin-like protein KIF3C
GGSGG	GIPC1. PDZ domain-containing protein GIPC1
GGSGG	KIF3B. Kinesin-like protein KIF3B
GGSGG	SOX12. Transcription factor SOX-12
GGSGG	SNUT1. U4/U6.U5 tri-snRNP-associated protein 1
GGSGG	SMAD6. Mothers against decapentaplegic homolog 6
GGSGG	AKAP8. A-kinase anchor protein 8
GGSGG	MED14. Mediator of RNA polymerase II transcription subunit 14
GGSGG	PCDH7. Protocadherin-7 precursor
GGSGG	ZC3H1. Zinc finger C3H1 domain-containing protein
GGSGG	MAST3. Microtubule-associated serine/threonine-protein kinase 3
GGSGG	ONEC3. One cut domain family member 3
GGSGG	FOXD2. Forkhead box protein D2
GGSGG	CNOT3. CCR4-NOT transcription complex subunit 3
GGSGG	SIN3B. Paired amphipathic helix protein Sin3b
GGSGG	RHBL1. Rhomboid-related protein 1
GGSGG	TRIO. Triple functional domain protein
GGSGG	SRP72. Signal recognition particle subunit SRP72
GGSGG	SLIK3. SLIT and NTRK-like protein 3 precursor
GGSGG	UBR5. E3 ubiquitin-protein ligase UBR5
GGSGG	SIX3. Homeobox protein SIX3
GGSGG	ZIC2. Zinc finger protein ZIC 2
GGSGG	DLGP3. Disks large-associated protein 3
GGSGG	EOMES. Eomesodermin homolog
GGSGG	ONEC2. One cut domain family member 2
GGSGG	GSHR. Glutathione reductase, mitochondrial precursor
GGSGG	LMNA. Prelamin-A/C precursor
GGSGG	K2C1. Keratin, type II cytoskeletal 1
GGSGG	K1C19. Keratin, type I cytoskeletal 19
GGSGG	S31D3. Putative spermatogenesis-associated protein 31D3
GGSGG	ZN853. Zinc finger protein 853
GGSGG	K2C3. Keratin, type II cytoskeletal 3
GGSGG	ACPH. Acylamino-acid-releasing enzyme
GGSGG	HXB3. Homeobox protein Hox-B3
GGSGG	LEUK. Leukosialin precursor
GGSGG	JUNB. Transcription factor jun-B
GGSGG	SYN1. Synapsin-1
GGSGG	HME2. Homeobox protein engrailed-2
GGSGG	OSBP1. Oxysterol-binding protein 1
GGSGG	KCNA4. Potassium voltage-gated channel subfamily A member 4
GGSGG	ROA2. Heterogeneous nuclear ribonucleoproteins A2/B1

GGSGG	RFX1. MHC class II regulatory factor RFX1
GGSGG	TGM1. Protein-glutamine gamma-glutamyltransferase K
GGSGG	LORI. Loricrin
GGSGG	GATA2. Endothelial transcription factor GATA-2
GGSGG	DNJB1. DnaJ homolog subfamily B member 1
GGSGG	PDE4A. cAMP-specific 3',5'-cyclic phosphodiesterase 4A
GGSGG	EPHA8. Ephrin type-A receptor 8 precursor
GGSGG	HNRH3. Heterogeneous nuclear ribonucleoprotein H3
GGSGG	K1C9. Keratin, type I cytoskeletal 9
GGSGG	IRS1. Insulin receptor substrate 1
GGSGG	FUS. RNA-binding protein FUS
GGSGG	K22E. Keratin, type II cytoskeletal 2 epidermal
GGSGG	RBMX. RNA-binding motif protein, X chromosome
GGSGG	CUX1. Homeobox protein cut-like 1
GGSGG	PBX2. Pre-B-cell leukemia transcription factor 2
GGSGG	MP2K4. Dual specificity mitogen-activated protein kinase kinase 4
GGSGG	EVX1. Homeobox even-skipped homolog protein 1
GGSGG	GSK3A. Glycogen synthase kinase-3 alpha
GGSGG	BCAM. Basal cell adhesion molecule precursor
GGSGG	ROA3. Heterogeneous nuclear ribonucleoprotein A3
GGSGG	IST1. IST1 homolog
GGSGG	HSP72. Heat shock-related 70 kDa protein 2
GGSGG	RD23B. UV excision repair protein RAD23 homolog B
GGSGG	PRS8. 26S protease regulatory subunit 8
GGSGG	IRX3. Iroquois-class homeodomain protein IRX-3
GGSGG	MAP1A. Microtubule-associated protein 1A
GGSGG	SKOR1. SKI family transcriptional corepressor 1
GGSGG	PURA. Transcriptional activator protein Pur-alpha
GGSGG	NFKB2. Nuclear factor NF-kappa-B p100 subunit
GGSGG	HNRPU. Heterogeneous nuclear ribonucleoprotein U
GGSGG	LMNB2. Lamin-B2 precursor
GGSGG	EVX2. Homeobox even-skipped homolog protein 2
GGSGG	HME1. Homeobox protein engrailed-1
GGSGG	SOX4. Transcription factor SOX-4
GGSGG	DMWD. Dystrophia myotonica WD repeat-containing protein
GGSGG	FP100. Fanconi anemia core complex-associated protein 100
GGSGG	ILF3. Interleukin enhancer-binding factor 3
GGSGG	EI2BE. Translation initiation factor eIF-2B subunit epsilon
GGSGG	DCTN2. Dynactin subunit 2
GGSGG	CDK13. Cyclin-dependent kinase 13
GGSGG	BECN1. Beclin-1
GGSGG	PUM1. Pumilio homolog 1
GGSGG	SPCS2. Signal peptidase complex subunit 2
GGSGG	NCOA2. Nuclear receptor coactivator 2
GGSGG	SMAD2. Mothers against decapentaplegic homolog 2
GGSGG	ZFHX3. Zinc finger homeobox protein 3
GGSGG	SMN. Survival motor neuron protein
GGSGG	PTPRN. Receptor-type tyrosine-protein phosphatase-like N precursor
GGSGG	TRXR1. Thioredoxin reductase 1, cytoplasmic
GGSGG	SHRM1. Protein Shroom1
GGSGG	SKOR2. SKI family transcriptional corepressor 2
GGSGG	FND3B. Fibronectin type III domain-containing protein 3B
GGSGG	PDLI3. PDZ and LIM domain protein 3
GGSGG	WDR81. WD repeat-containing protein 81 precursor
GGSGG	ARSH. Arylsulfatase H

GGSGG	XKR4. XK-related protein 4
GGSGG	PPR29. Protein phosphatase 1 regulatory subunit 29 precursor
GGSGG	SOGA3. Protein SOGA3 precursor
GGSGG	RPRD2. Regulation of nuclear pre-mRNA domain-containing protein 2
GGSGG	K2C79. Keratin, type II cytoskeletal 79
GGSGG	NAIF1. Nuclear apoptosis-inducing factor 1
GGSGG	DMKN. Dermokine precursor
GGSGG	ZN746. Zinc finger protein 746
GGSGG	TAPT1. Transmembrane anterior posterior transformation protein 1 homolog
GGSGG	INT5. Integrator complex subunit 5
GGSGG	RSBNL. Round spermatid basic protein 1-like protein
GGSGG	KLD10. Kelch domain-containing protein 10
GGSGG	SAMD1. Atherin
GGSGG	LIGO4. Leucine-rich repeat and immunoglobulin-like domain-containing nogo receptor-interacting protein 4 precursor
GGSGG	T184A. Transmembrane protein 184A
GGSGG	AEBP2. Zinc finger protein AEBP2
GGSGG	S31D1. Spermatogenesis-associated protein 31D1
GGSGG	CA229. Putative uncharacterized protein C1orf229
GGSGG	TBCD9. TBC1 domain family member 9
GGSGG	FA43B. Protein FAM43B
GGSGG	S31D4. Putative spermatogenesis-associated protein 31D4
GGSGG	SPT6H. Transcription elongation factor SPT6
GGSGG	CXXC5. CXXC-type zinc finger protein 5
GGSGG	ERMP1. Endoplasmic reticulum metallopeptidase 1
GGSGG	POGZ. Pogo transposable element with ZNF domain
GGSGG	K2C1B. Keratin, type II cytoskeletal 1b
GGSGG	TRXR3. Thioredoxin reductase 3
GGSGG	SPP2C. Signal peptide peptidase-like 2C precursor
GGSGG	LUR1L. Leucine rich adaptor protein 1-like
GGSGG	SP8. Transcription factor Sp8
GGSGG	TEFF1. Tomoregulin-1 precursor
GGSGG	BD1L2. Biorientation of chromosomes in cell division protein 1-like 2
GGSGG	MAML2. Mastermind-like protein 2
GGSGG	YF001. Uncharacterized protein FLJ37310
GGSGG	G137C. Integral membrane protein GPR137C
GGSGG	CB069. UPF0565 protein C2orf69 precursor
GGSGG	VA0D2. V-type proton ATPase subunit d 2
GGSGG	FA98A. Protein FAM98A
GGSGG	ARI1B. AT-rich interactive domain-containing protein 1B
GGSGG	NBEA. Neurobeachin
GGSGG	DBF4B. Protein DBF4 homolog B
GGSGG	TRPM4. Transient receptor potential cation channel subfamily M member 4
GGSGG	SP7. Transcription factor Sp7
GGSGG	ATS19. A disintegrin and metalloproteinase with thrombospondin motifs 19 precursor
GGSGG	GATD1. GATA zinc finger domain-containing protein 1
GGSGG	T170A. Transmembrane protein 170A
GGSGG	CCG8. Voltage-dependent calcium channel gamma-8 subunit
GGSGG	ANS1A. Ankyrin repeat and SAM domain-containing protein 1A
GGSGG	RBP56. TATA-binding protein-associated factor 2N
GGSGG	UBP13. Ubiquitin carboxyl-terminal hydrolase 13
GGSGG	MED12. Mediator of RNA polymerase II transcription subunit 12
GGSGG	FBXW7. F-box/WD repeat-containing protein 7
GGSGG	YIPF5. Protein YIPF5
GGSGG	IP3KC. Inositol-trisphosphate 3-kinase C
GGSGG	F122A. Protein FAM122A

GGSGG	RMXL1. RNA binding motif protein, X-linked-like-1
GGSGG	MAML3. Mastermind-like protein 3
GGSGG	NEUL4. Neuralized-like protein 4
GGSGG	BBC3B. Bcl-2-binding component 3
GGSGG	SYGP1. Ras/Rap GTPase-activating protein SynGAP
GGSGG	CC85A. Coiled-coil domain-containing protein 85A
GGSGG	PP1RA. Serine/threonine-protein phosphatase 1 regulatory subunit 10
GGSGG	PURB. Transcriptional activator protein Pur-beta
GGSGG	RBM15. Putative RNA-binding protein 15
GGSGG	CITE2. Cbp/p300-interacting transactivator 2
GGSGG	HNRL1. Heterogeneous nuclear ribonucleoprotein U-like protein 1
GGSGG	BTBD2. BTB/POZ domain-containing protein 2
GGSGG	S4A5. Electrogenic sodium bicarbonate cotransporter 4
GGSGG	GLIS2. Zinc finger protein GLIS2
GGSGG	BHE41. Class E basic helix-loop-helix protein 41
GGSGG	PRD13. PR domain zinc finger protein 13
GGSGG	PRR36. Proline-rich protein 36
GGSGG	NARFL. Cytosolic Fe-S cluster assembly factor NARFL
GGSGG	SFR19. Splicing factor, arginine/serine-rich 19
GGSGG	CAAP1. Caspase activity and apoptosis inhibitor 1
GGSGG	ANO8. Anoctamin-8
GGSGG	TF7L1. Transcription factor 7-like 1
GGSGG	TRXR2. Thioredoxin reductase 2, mitochondrial precursor
GGSGG	M1IP1. Mid1-interacting protein 1
GGSGG	GPR27. Probable G-protein coupled receptor 27
GGSGG	BMP2K. BMP-2-inducible protein kinase
GGSGG	LRC4B. Leucine-rich repeat-containing protein 4B precursor
GGSGG	RNF12. E3 ubiquitin-protein ligase RLIM
GGSGG	DONS. Protein downstream neighbor of Son
GGSGG	MTCH1. Mitochondrial carrier homolog 1
GGSGG	GSCR1. Glioma tumor suppressor candidate region gene 1 protein
GGSGG	BAHC1. BAH and coiled-coil domain-containing protein 1
GGSGG	CHD7. Chromodomain-helicase-DNA-binding protein 7
GGSGG	PCD10. Protocadherin-10 precursor
GGSGG	MBD2. Methyl-CpG-binding domain protein 2
GGSGG	HNF6. Hepatocyte nuclear factor 6
GGSGG	NKX12. NK1 transcription factor-related protein 2
GGSGG	AAKG2. 5'-AMP-activated protein kinase subunit gamma-2
GGSGG	SRP68. Signal recognition particle subunit SRP68
GGSGG	DACH1. Dachshund homolog 1
GGSGG	CAD22. Cadherin-22 precursor
GGSGG	FOXD3. Forkhead box protein D3
GGSGG	CXD2. Gap junction delta-2 protein
GGSGG	RALY. RNA-binding protein Raly
GGSGG	CNO11. CCR4-NOT transcription complex subunit 11
GGSGG	LRFN2. Leucine-rich repeat and fibronectin type-III domain-containing protein 2 precursor
GGSGG	ATD2B. ATPase family AAA domain-containing protein 2B
GGSGG	COHA1. Collagen alpha-1(XVII) chain
GGSGG	SRPK3. SRSF protein kinase 3
GGSGG	LRCH1. Leucine-rich repeat and calponin homology domain-containing protein 1
GGSGG	ZN281. Zinc finger protein 281
GGSGG	HCN4. Potassium/sodium hyperpolarization-activated cyclic nucleotide-gated channel 4
GGSGG	HECD4. Probable E3 ubiquitin-protein ligase HECTD4
GGSGG	MARF1. Meiosis arrest female protein 1
GGSGG	SHAN1. SH3 and multiple ankyrin repeat domains protein 1

GGSGG	SQRD. Sulfide:quinone oxidoreductase, mitochondrial precursor
GGSGG	S23IP. SEC23-interacting protein

Table S3. Twenty-six out of 29 HPV16 pentapeptides common to HCMV, *C. tetani, C. diphtheriae, B. pertussis, T. gondii, T. cruzi*, and *H. sapiens* occur in immunopositive epitopes cataloged at IEDB.
Column 1: Epitope IEDB identity number
Column 2: Epitopes (with shared sequences in capital letters)
Immunoassay details and references at www.immuneepitope.org [44]. The pentapeptides SLCAA, TGSGT, and RAAKR are not present in IEDB epitopic sequences at the time of the analyses.

1	2	1	2	1	2
2316	akvlVVLLLfagvdaethvtggsa	135972	prrpgglGGSGG	458206	rlnpLVLLL
3793	aprtLVLLL	136316	GGSGGrrgrgrerarggsrera	458300	rpaLVLLLa
9962	drdrselsPLLLStt	143034	rkrrsaSTAAAgggg	459124	sLLSVShal
12311	egVVLLLVgalvl	143047	rrkrrsaSTAAA	459957	tLLNKLyvi
13275	elsPLLLSttqwqvl	143060	saSTAAggggstdnl	462083	knnacgiANLAS
14562	ettgVVLLLeyipeitlpvi	144417	nepTAAALaygldk	463263	apaANLASripa
16955	fLVLLLfsll	149036	ElsPLLLSt	463616	apvniagsrTAAAL
18062	ftsaVLLLV	153001	spdriffhlnAVALGdg	463701	aTAAALtygly
18657	galettgVVLLLeyipeitl	163453	slQPPTPglk	477858	eqvgGGSGGag
20013	GGSGGsvasvasggs	167028	vssqykLLSVSksfiii	478565	GGSGGsggyggr
20039	ggsvasvasGGSGGs	174664	myfkyTAAALaavlplcsaq	480664	klaytLLNKL
20906	gliAGAVGgsllaal	178457	aAVALGffvwlegra	484118	riqeLEDLLak
21006	gLLNKLeni	179709	ylawlSTAAAqaeqa	494971	srhpFLTAL
25480	iayfsmvgnwakvlVVLLLfagvda	180362	aaVLLLVthy	502256	sGGSGGyggrsry
42026	mlpapppgqpsgrrrgrrsGGSGGg	180775	tltaaVLLLV	502766	svGGSGGgsfgdnlvtr
44662	nlddrdrselsPLLLSttew	180799	VLLLVthyai	504877	dpnLVLLLh
46527	nwakvlVVLLLfagv	203110	attTTVTTk	508343	splqplTAAAL
47492	pffTAAALtvmatagvaavv	219757	TAASArlf	508874	vfVALGTsi
51486	qlpstgetanpffTAAALtv	226583	asppSTAAA	511445	apaggpapSTAAApaeek
51965	qpsgrrrgrrsGGSGGgfwgdrvds	228058	eatkaLLNKLavlkl	514494	eesnpffTAAALaim
53382	rdlldTAAALyrdalespeh	228223	glvtefpSTAAAyfr	515194	epTAAALayg
55587	rrgrrsGGSGGgfwgdrvdsqpfai	228429	ktlAVALGgarplat	515195	epTAAALaygl
55739	rrsGGSGGgfwgdrvdsq	229054	akkLLKLLngikskvn	516567	ggGGSGGiaeagsghm
56439	rvvfVVLLLlvapays	229356	lqwlsfilslkkrllPLLLSl	516990	gpapSTAAApaeekk
58058	sggsvtsGGSGGsva	232663	lvlvlwiTAASAfrc	518854	inepTAAALayg
60119	sPLLLSttqwqvlpcsf	232667	mtnldTASTTllacf	528829	vhavAGAVGsvt
62051	svasGGSGGsvasgg	232675	rPLLLSVStytslil	534601	aasppSTAAAppapatpvap
69612	VLLLVthya	236939	gggygsgGGSGGygsrrf	536691	lfikaiedAVALGadvinls
69736	vlrivnepTAAALaygldkg	236941	ghtSTISTl	541821	epstpgGGSGGggavaaa
69847	vlVVLLLfagvdaeth	237048	iprpILVLL	542281	ggetvmvnaaAGAVGsvvgqiak
73667	yegnfigalettgVVLLLgyipe	237397	spygggygsgGGSGGygsrrf	543325	kmeeANLASrak
73904	yfsmvgnwakvlVVLLLfag	237581	ygggygsgGGSGGygsrrf	544035	lvvgGGSGGla
77959	myfkyTAAALaavlp	239472	aprtLVLLLsgal	544953	rtLSSSTqasieidslyegidfytsitr
102579	krtLSSSTqasleidslfeg	240309	rprppGGSGGgsrl	545521	svGGSGGgsfgdnlvtrsy
103434	naFLTALtnagiayd	240519	spygggygsgGGSGGygsr	545547	sydydliiigGGSGGlaaak
106067	rGGSGGrgrGGSGG	241756	ggavykghrAVALGgtarin	545760	tLSSSTqasleidslfegidfytsitr
109477	LEDLLmgtlgivcpicsqkp	418444	PLLLSlli	549347	algTAAAL
109519	lrlcvqsthvdirtLEDLLm	423584	vlrivnepTAAALay	550002	agaapaggpapSTAAApaeekkv
110434	tkypLLKLLgstwpttpprp	423585	vlrvinepTAAALay	551615	fgerssGGSGGgplsh
110462	ygttleqqynkplcDLLIRcincqkplcpeek	425051	gsiAVALGy	551616	fgerssGGSGGgplshf
110468	yyvlhlclaatkypLLKLLg	427027	rtaPLLLSy	551783	fVALGTsvpdtfaskv
110872	gsgstANLASsnyfp	427879	tTAASAysy	551946	gggnygpGGSGGsggyggrsry
110895	hvdirtLEDLLmgt	428675	yLIPIVvry	551970	ggpapSTAAApaeekkv
110908	irtLEDLLmgtlgiv	431022	lsdaLLNKLigry	551988	GGSGGsggyggrsry

1	2	1	2	1	2
110938	lyikgsgstANLASsnyfpt	431998	qtdLLKLLv	552216	gpGGSGGsggyggrsry
111018	seyrhycyslygttleqqynkplcDLLIRc	434274	STISTavqstgksvisggldalef	552291	gsamrseSTAAAehkgkii
111032	sthvdirtLEDLLmg	436273	afGGSGGrgsssgggy	552301	gsGGSGGyggrsry
111404	hvdirtLEDLLmgtl	436905	DLLIRthm	552614	hyevlvlgGGSGGitm
111477	ledrdrselsPLLLSttew	439790	rDLLIRthm	552714	iglggrGGSGGsygrgs
111608	paatkpLLKLLgstwpttpprpipk	440771	ssgspygggygsgGGSGGygsr	552971	iypaqnpeLLNKLsqrktt
112797	kplcDLLIRcincqkplcpeek	441804	ygggnygpGGSGGsggyggr	554039	LSSSTsprappshrp
112865	ygttleqqynkplcDLLIRcin	441974	yrsvGGSGGgsfgdnl	554486	nhyevlvlgGGSGGi
113015	gttleqqynkplcDLLIRcinc	442654	aprtLVLLLsg	555997	sfiypaqnpeLLNKLsqrktt
113033	irtLEDLLmgt	443156	dhLLSVSl	556479	STAAApaeekkve
113111	plcDLLIRcincqkplcpeekq	444805	hpFLTALky	557591	vsefSTSETmghsadrlaa
118769	DLLIRcincqkplcpeekqrhl	448479	spfpFLTAL	565309	rvinepTAAALay
118895	lrlcvqsthvdirtLEDLLmgtl	449441	trhpFLTAL	578326	STSETpqppr
119031	tLEDLLmgtlgivcpicsqkp	450324	yrdpTTVTTl	579226	vevGGSGGcl
119057	ygttleqqynkplcDLLIRc	452296	alhqILVLL	584986	kmLEDLLalf
119893	ggggGGSGGGGSGGgggggss	452480	aLVLLLtev	587815	qrsaLVLLL
128303	apSTAAApaeekkve	457164	nipAVALGi	591011	vSTAAAsqw