

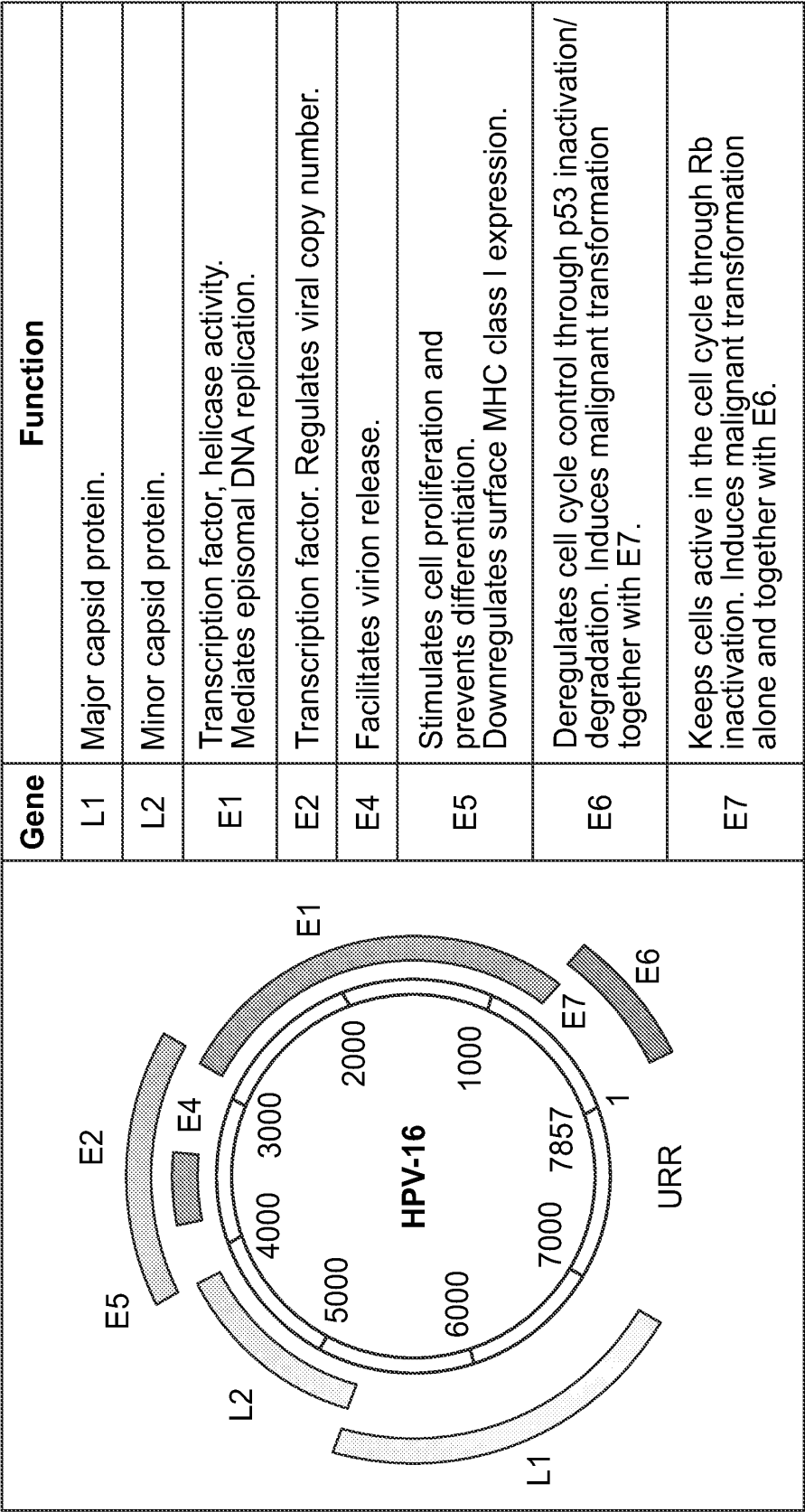


FIG. 1

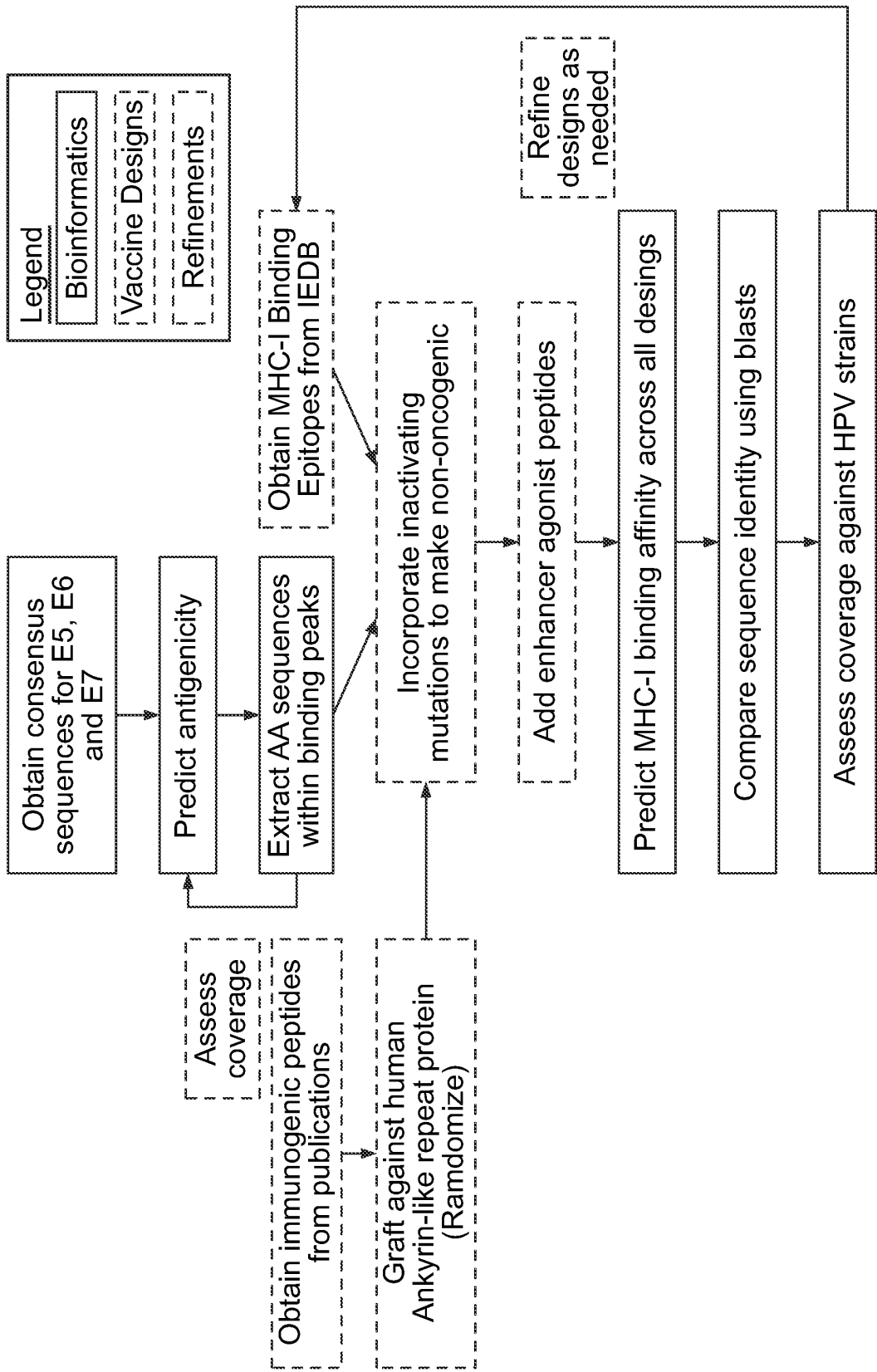


FIG. 2

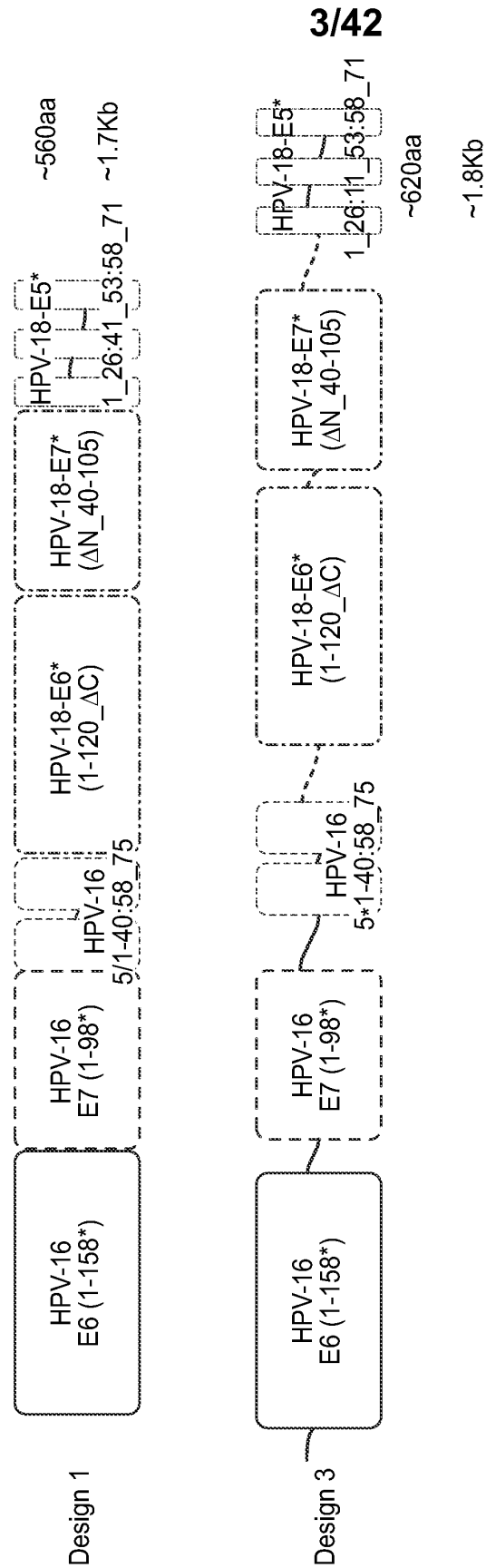


FIG. 3

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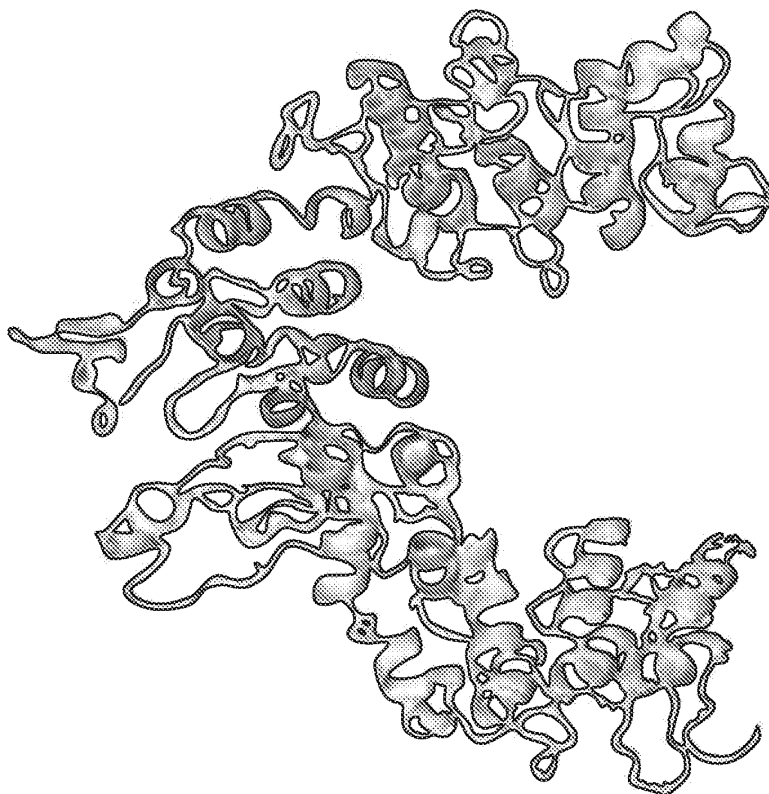


FIG. 4B

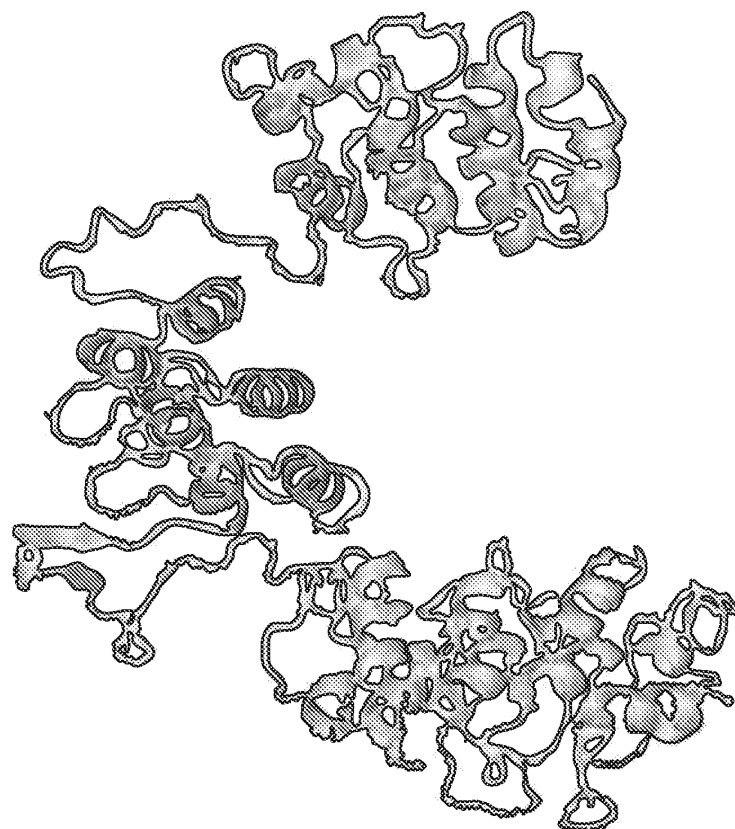


FIG. 4A

Score	Expect	Method	Identities	Positives	Gaps
585 bits(1507)	0.0	Compositional matrix adjust.	365/566(64%)	379/566(66%)	134/566(23%)
Query 4	RELTEVFEFAARYSRSDYIIFFVYIPLADAKLPQLCTEVDNMLLMGTGIVPLHAAVSADT +ELTEVFEFA +Y IIFVYIP KLPQLCTEV LLMGTGIV T				63
Sbjct 2	KELTEVFEFAKKY-----IIFVYIPK-KKLPQLCTEVKK-LLMGTLGIV-----KKT				47
Query 64	LHEYMLDLNRATDLSEENDEIDGVNHQHLPARRMHDNLLIRCLRCPILAAARLAVLFL LHEYMLDL+ SEENDEIDGVNHQHLPARR NLLIRCLRC LFL				123
Sbjct 48	LHEYMLDLKK-----SEENDEIDGVNHQHLPARR-KKNLLIRCLRC-----KKLFL				93
Query 124	NTLSFVCPWCASHADVKCIDFYSRIDDLKLPDLCTELALHWAANVNVQLFNLTLFSVG NTLSFVCPWCAS KCIDFYSRI KLPDLCTEL QLFNLTLFSV				183
Sbjct 94	NTLSFVCPWCASKK---KCIDFYSRIK-KLPDLCTEL-----KKQLFNLTLFSV-				139
Query 184	ANKFQQFLFNLNRRVYDFAFRDLPLFLAAREGSYEKLTNTGLYNLANRLCIVYRDGNPY KFQQFLFNTL +VYDFAFRDL +KLNTGLYNL +LCIVYRDGNPY				243
Sbjct 140	-KKFQQFLFNTLKKVYDFAFRDLK-----KKLTNTGLYNL-KKLCIVYRDGNPY				186
Query 244	AVCDDHMYMLDLQPETTPRDFAFRDLCVIYIVRLDLEVSQTSKLTRQTDRTLGIVCPIA AVCD YMLDLQPETT + FAFRDLCVI +TLGIVCPI				303
Sbjct 187	AVCDKK-YMLDLQPETT-KKFAFRDLCVI-----KKTGIVCPIK				225
Query 304	ARYSRSDRTLEDLLMGVADATIHDIILECVDNMHLDDKKQRFHNIPLHAAVSADTTLEQQY RTLEDLLMGV TIHDIILECV HLDKKQRFHNI TTLEQQY				363
Sbjct 226	K-----RTLEDLLMGVK-KTIHDIILECVKK-HLDKKQRFHNI-----KKTLEQQY				270
Query 364	NKPLCDLLNRATDLCSTLRLCVMHDRWTGRCMSCCPILAAARLAVSLQDIEITCVSHA NKPLCDLL+ CDSTLRLCV RWTGRCMSCC SLQDIEITCV				423
Sbjct 271	NKPLCDLLKK-----CDSTLRLCV-KKRWTGRCMSCC-----KKSQDIEITCVKK-				315
Query 424	DVLCVQSTHVDIDDLAHYNIIVTFCCLHWAANVNVDDLRAFAQQLFNLTLSGANKISEYRH LCVQSTHVDI AHYNIIVTFCC DDLRAFAQQLFNLTL KISEYRH				483
Sbjct 316	--LCVQSTHVDIK-AHYNIIVTFCC-----KKDDLRAFAQQLFNLTL--KKI SEYRH				362
Query 484	YCYNRKL PQLCTELPLFLAAREGSYEKTVLEL TEVANRRTELEDLLMGTHMFAFKDLFV YCY +KL PQLCTEL +KTVLEL TEV +RTLEDLLMG T FAFKDLFV				543
Sbjct 363	YCY-KKKLPQLCTELK-----KKTVLEL TEV-KKRTLEDLLMGTKK-FAFKDLFV				409
Query 544	VPRDQLYNKPLCDVIVRTLQDIVLHL 569 V + QLYNKPLCDV +TLQDIVLHL				
Sbjct 410	V-KKQLYNKPLCDV-KKTLQDIVLHL 433				

FIG. 5A

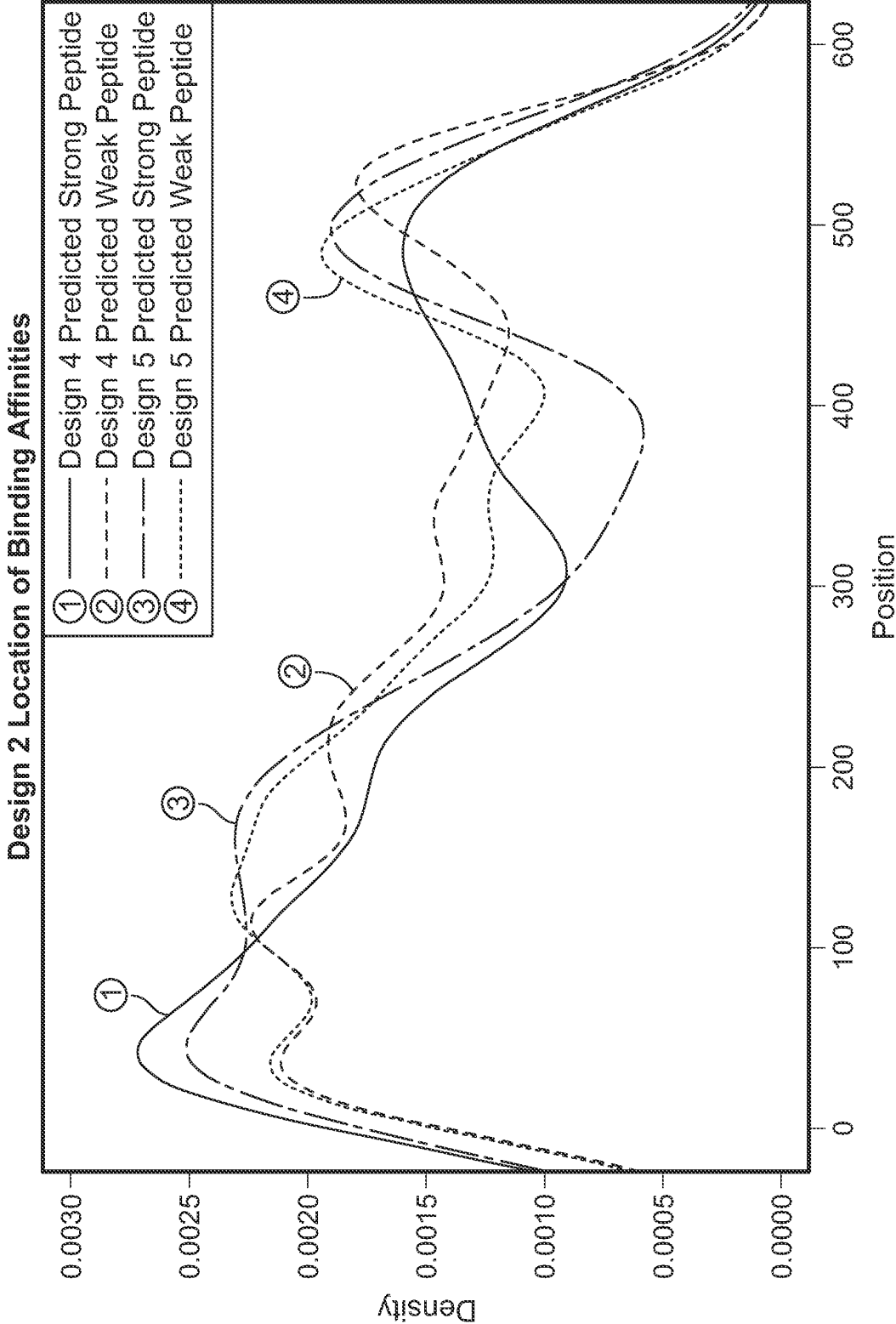


FIG. 5B

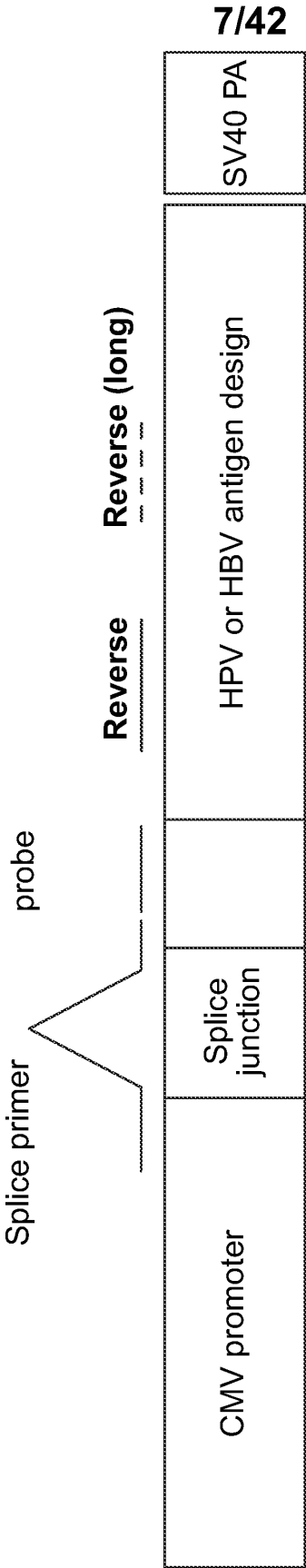


FIG. 6

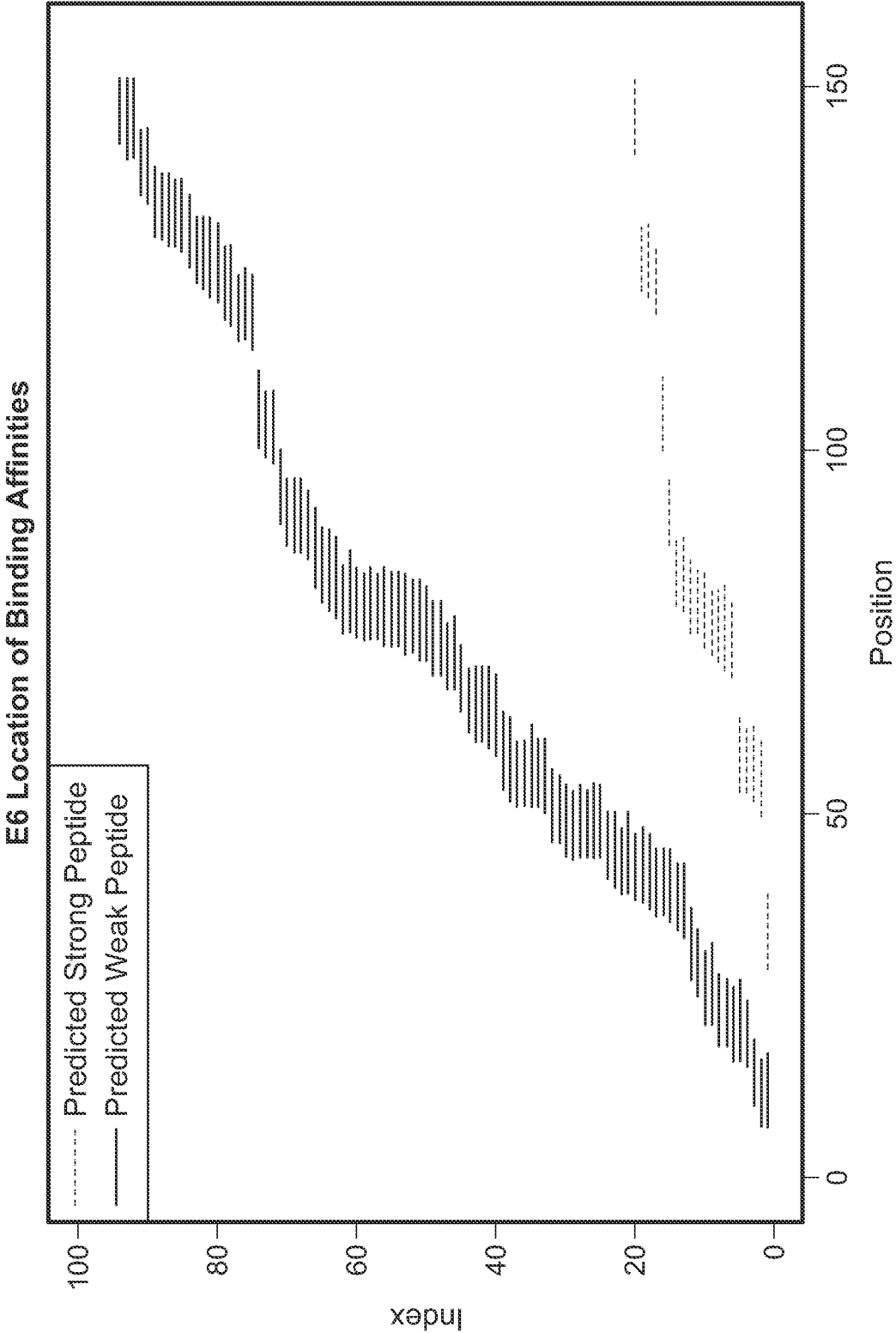


FIG. 7A

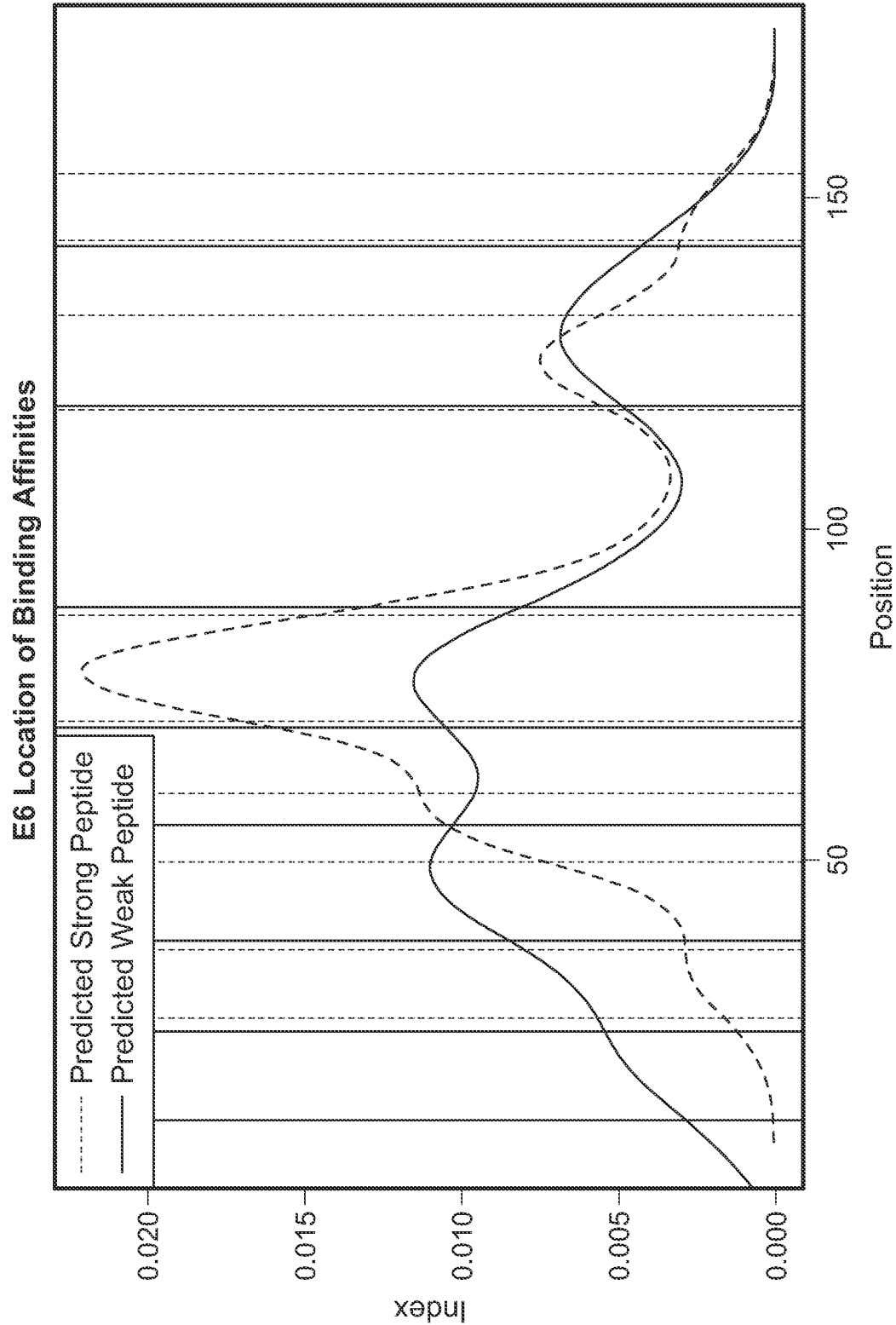


FIG. 7B

1090	HPV002099	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002373	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002108	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002118	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002256	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002565	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002436	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002102	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002420	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002379	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002129	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002203	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002130	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002131	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002529	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002696	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002186	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002254	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002155	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002551	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002180	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002504	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002525	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002179	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002540	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002490	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC
	HPV002406	E6	ty	MHOKRTAMFQDPQERPRKIPOLCELOITIHNTILECVCKOOLLRRVWDFAFRDLICIVYRDGNVAVCDCKLKFYSKISEVRHYQVSLNGTTLEQQNKPLC

FIG. 7C

(MOD-1755822)	HPV 16 18 E6 E7 E5	-----MFQDPQERPRKLPQLCTALQTTIHDIILECVYCKQQLRREVYDFAFRDGC
(MOD-1755825)	HPV 16 18 E6 E7 E5	kIpglctevMFQDPQERPRKLPQLCTALQTTIHDIILECVYCKQQLRREVYDFAFRDGC
(MOD-1755822)	HPV 16 18 E6 E7 E5	IIVRDGNPYAVCDKCLKFYSKISEYRHYCYSLYGTTLEQQYNKPLCDLLIRCINCKPLC
(MOD-1755825)	HPV 16 18 E6 E7 E5	IIVRDGNPYAVCDKCLKFYSKISEYRHYCYSLYGTTLEQQYNKPLCDLLIRCINCKPLC
(MOD-1755822)	HPV 16 18 E6 E7 E5	PEEKQRHLDKKQRFHNIRGRWTGRCMSCCRSSRTRRAAA-----MPGDTPTKHE
(MOD-1755825)	HPV 16 18 E6 E7 E5	PEEKQRHLDKKQRFHNIRGRWTGRCMSCCRSSRTRRAAAAglynkplcdvMPGDTPTKHE
(MOD-1755822)	HPV 16 18 E6 E7 E5	YMLDLQPETTDLYGYEQLNDSSEEEDEIDGPAGQAAPDRAHYNIVTFCCCKDSTLRRCVQ
(MOD-1755825)	HPV 16 18 E6 E7 E5	YMLDLQPETTDLYGYEQLNDSSEEEDEIDGPAGQAAPDRAHYNIVTFCCCKDSTLRRCVQ
(MOD-1755822)	HPV 16 18 E6 E7 E5	STHVDIRTLEDLLMGTLGIVCPICSQKP-----MTNLDTASTTLLACFLLCFCVL
(MOD-1755825)	HPV 16 18 E6 E7 E5	STHVDIRTLEDLLMGTLGIVCPICSQKPrtledllmgvMTNLDTASTTLLACFLLCFCVL
(MOD-1755822)	HPV 16 18 E6 E7 E5	LCVCLLIRPLLSVSTYTRCFIVYIIFVYIPLFLIH-----MARFEDPTRRPYKLP
(MOD-1755825)	HPV 16 18 E6 E7 E5	LCVCLLIRPLLSVSTYTRCFIVYIIFVYIPLFLIHkplcdlctevMARFEDPTRRPYKLP
(MOD-1755822)	HPV 16 18 E6 E7 E5	DLCTALNTSLQDIEITCVYCKTVLELTFEVFEFAKDGFWVYRDSIPHAACHKCIDFYSRI
(MOD-1755825)	HPV 16 18 E6 E7 E5	DLCTALNTSLQDIEITCVYCKTVLELTFEVFEFAKDGFWVYRDSIPHAACHKCIDFYSRI
(MOD-1755822)	HPV 16 18 E6 E7 E5	RELRYSDSVYGDITLEKLTNTGLYNLLIRCLRCQKPLNPAEKL RH-----EIDGV
(MOD-1755825)	HPV 16 18 E6 E7 E5	RELRYSDSVYGDITLEKLTNTGLYNLLIRCLRCQKPLNPAEKL RHkltntglynvEIDGV
(MOD-1755822)	HPV 16 18 E6 E7 E5	NHQHLPARRAAPQRHTMLCMCKCEARIERVVESSADDLRAFQQLFLNTLSFVCPWCASQ
(MOD-1755825)	HPV 16 18 E6 E7 E5	NHQHLPARRAAPQRHTMLCMCKCEARIERVVESSADDLRAFQQLFLNTLSFVCPWCASQ
(MOD-1755822)	HPV 16 18 E6 E7 E5	Q-----MLSLIFLFCFCVCMVVCCHVP LLPSVVVITSPATAFTVYLLPMLLLHH
(MOD-1755825)	HPV 16 18 E6 E7 E5	QrafgglflnvMLSLIFLFCFCVCMVVCCHVP LLPSVVVITSPATAFTVYLLPMLLLHH
(MOD-1755822)	HPV 16 18 E6 E7 E5	AILS
(MOD-1755825)	HPV 16 18 E6 E7 E5	AILS

FIG. 8

(MOD-1755804) HPV- 16 E6 (1-151) native seq	-----MFQDPQERPRKLPQLCTaLQTTIHDIILECVYCKQQLLRREVYDFAFRDgCIV mhqkrtqMFQDPQERPRKLPQLCTeLQTTIHDIILECVYCKQQLLRREVYDFAFRDjCIV
(MOD-1755804) HPV- 16 E6 (1-151) native seq	YRDGNPYAVCDKCLKFYSKISEYRHYCVSYLGTTLQYYNKPLCDLLIRCINCQKPLCPE YRDGNPYAVCDKCLKFYSKISEYRHYCVSYLGTTLQYYNKPLCDLLIRCINCQKPLCPE
(MOD-1755804) HPV- 16 E6 (1-151) native seq	EKQRHLDKKQRFHNIRGRWTGRCMSCCRSSRTRRaaaa EKQRHLDKKQRFHNIRGRWTGRCMSCCRSSRTRRretgl

FIG. 9A

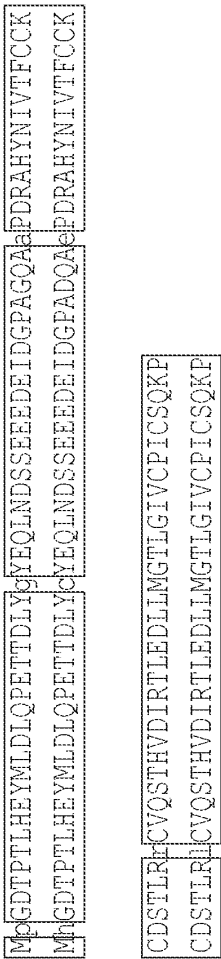


FIG. 9B

(MOD-1755805) HPV- 16 E7 (1-98) n
native seq

(MOD-1755805) HPV- 16 E7 (1-98) n
native seq

(MOD-1755806) HPV- 16 E5 (1-40:58 native seq	MTNLDTASTTLLACFLLCFLLCFVLLCVCLLIRPLLLLSVSTYT	-----RCF
	MTNLDTASTTLLACFLLCFLLCFVLLCVCLLIRPLLLLSVSTYTs	iiilvlllwiitaasafRCF
(MOD-1755806) HPV- 16 E5 (1-40:58 native seq	IVYIIFVYIPLFLIH	-----
	IVYIIFVYIPLFLIH	tharflit

FIG. 9C

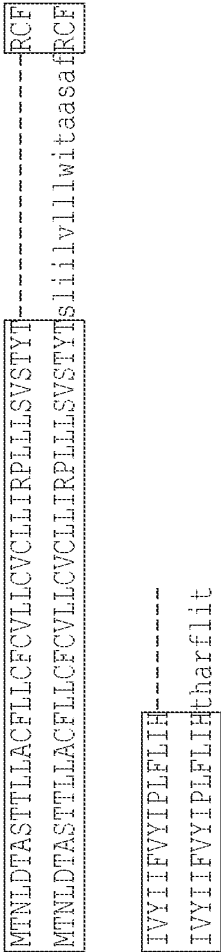


FIG. 10A

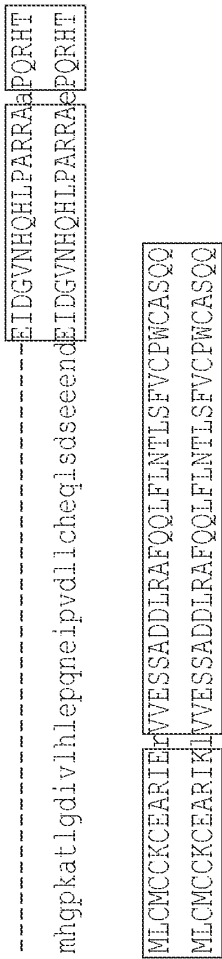


FIG. 10B

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MSLSIFLFCFCVCMVCCHVPLPSV
WVITSPATAFTV
LLP

(MOD-1755809) HPV- 18 E5(1-26:41
native seq

MLLHIHAILS	MLLHIHAILS
------------	------------

(MOD-1755809) HPV- 18 E5(1-26:41
native seq

FIG. 10C

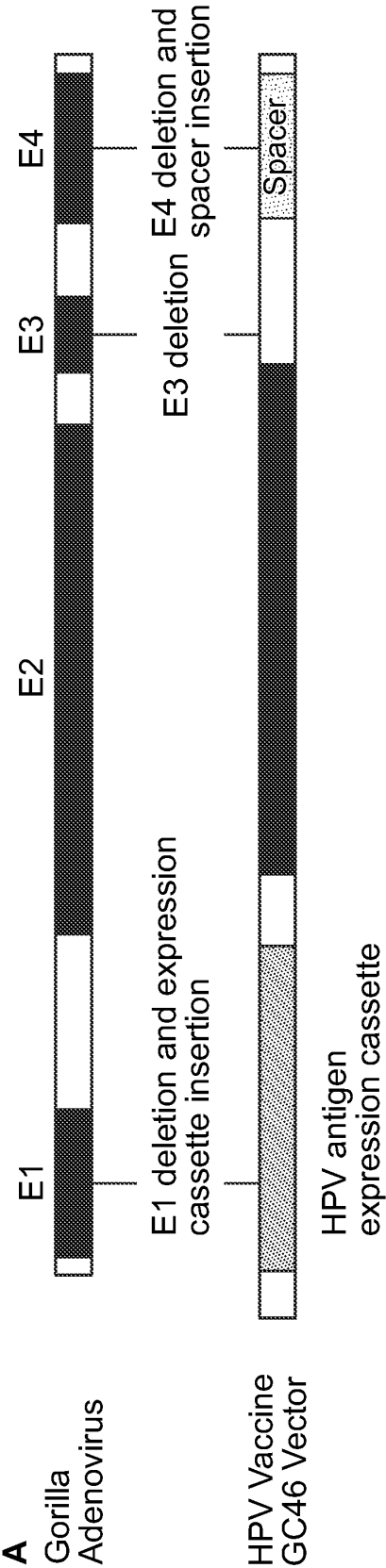


FIG. 11A

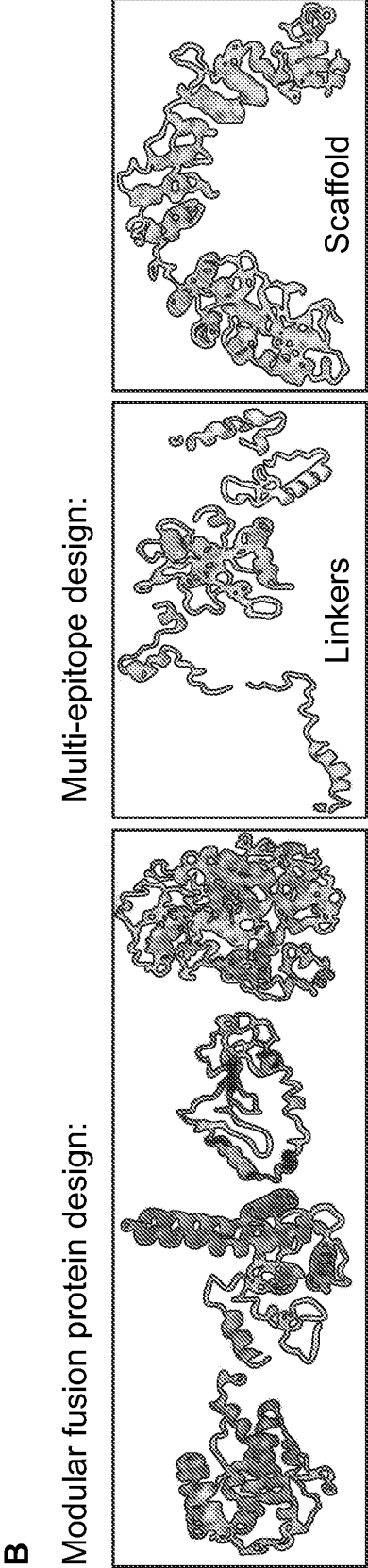


FIG. 11B

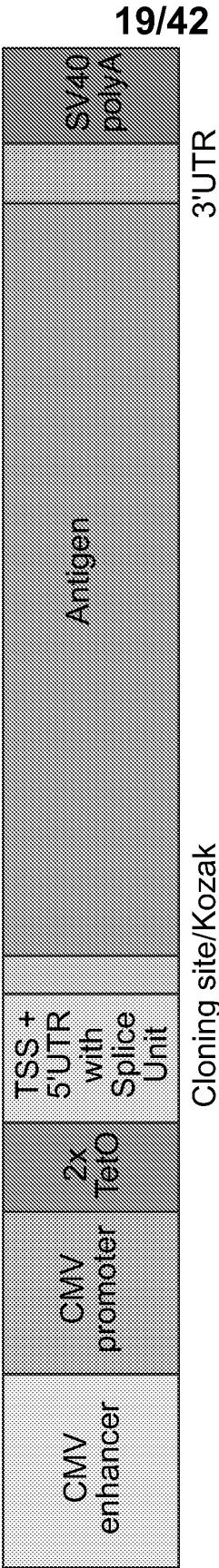
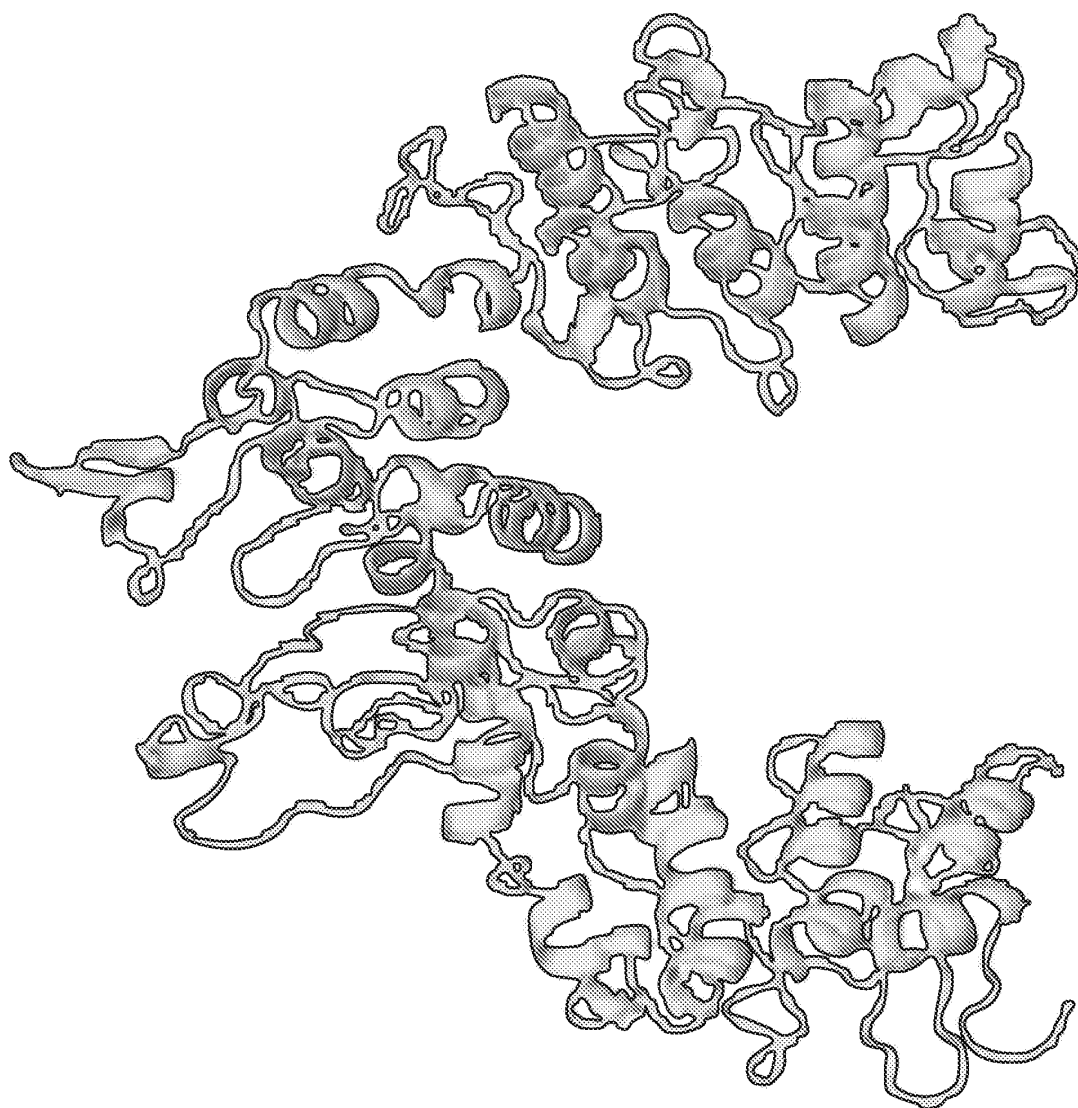


FIG. 12

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FIG. 13A



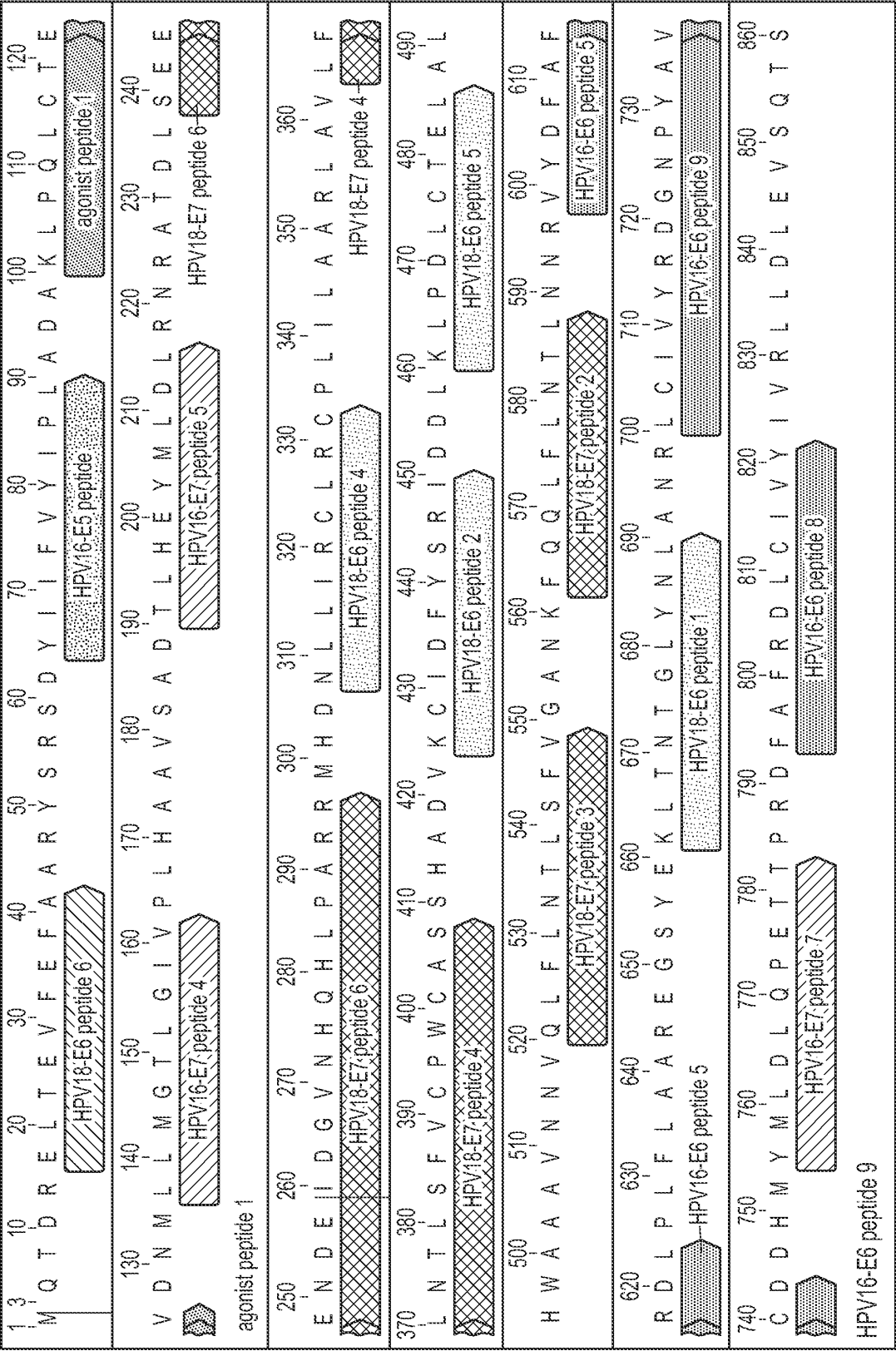


FIG. 13B

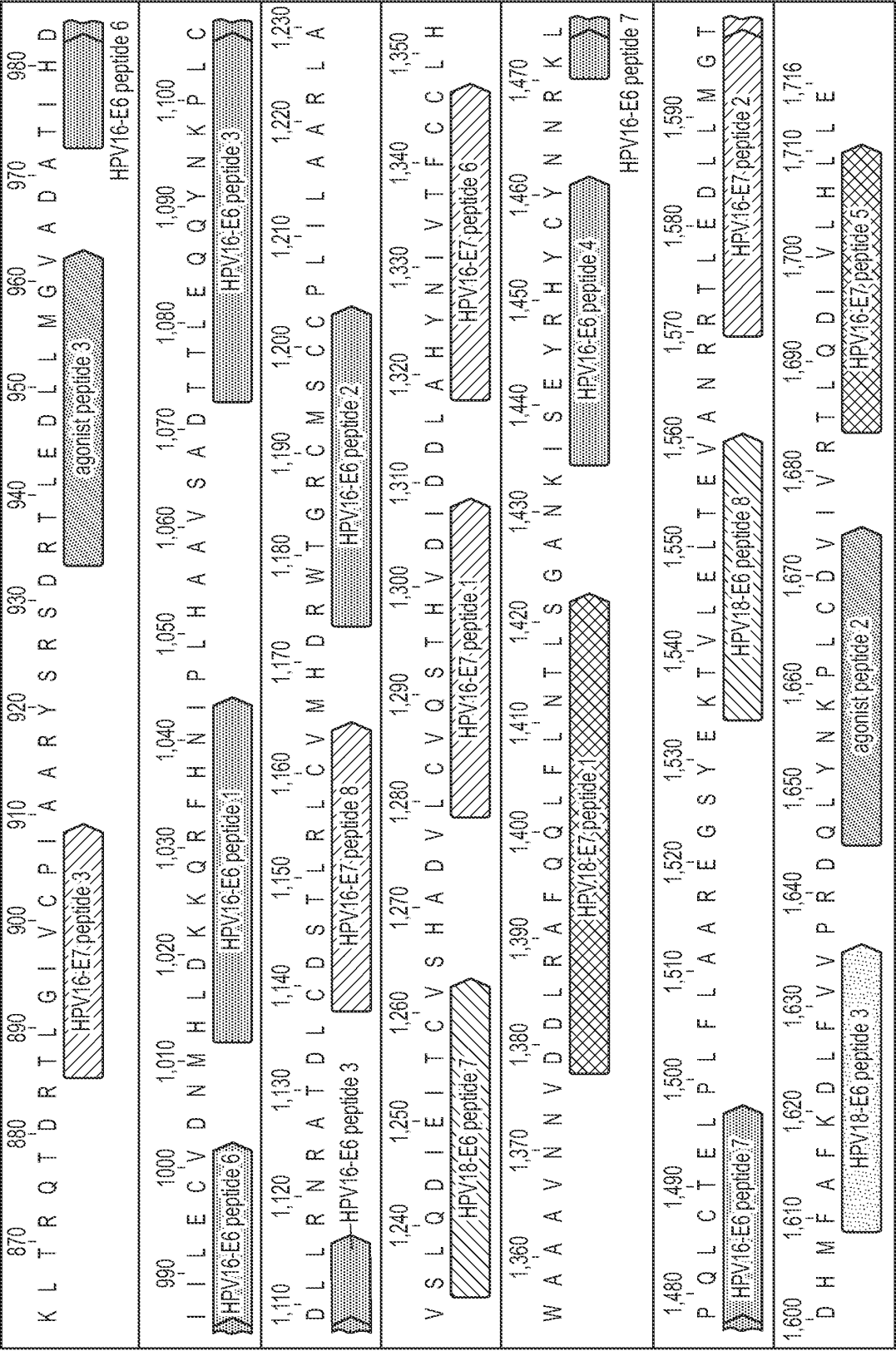
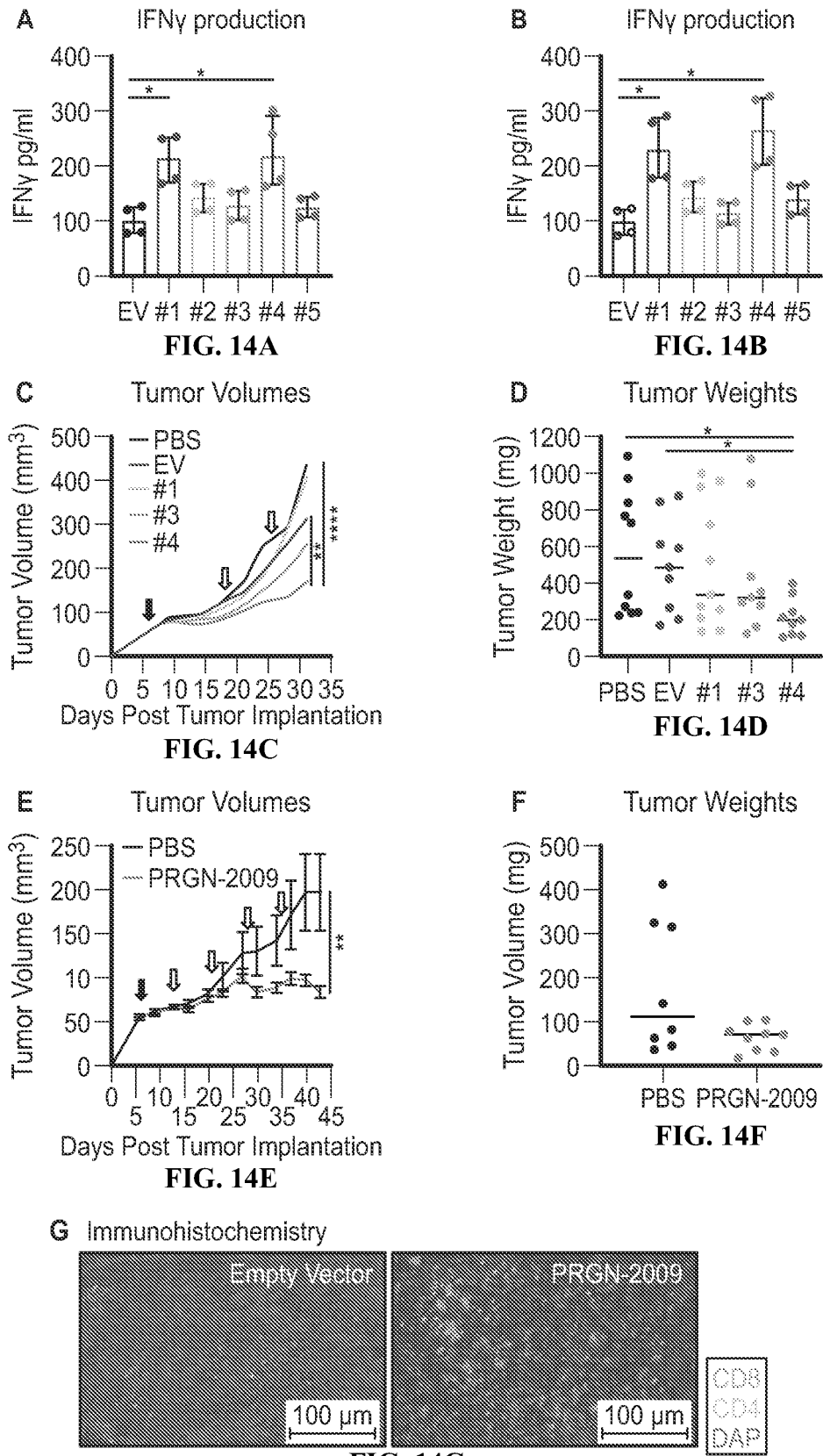
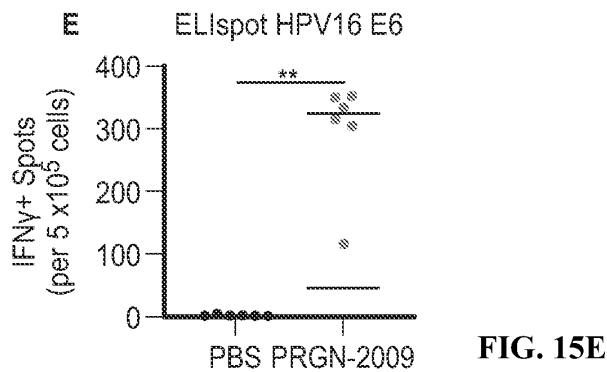
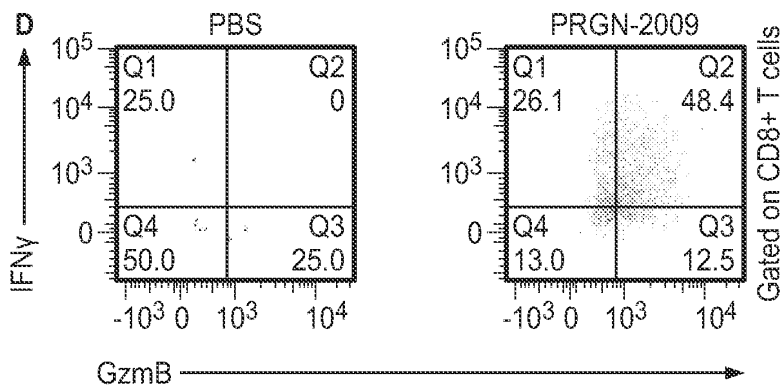
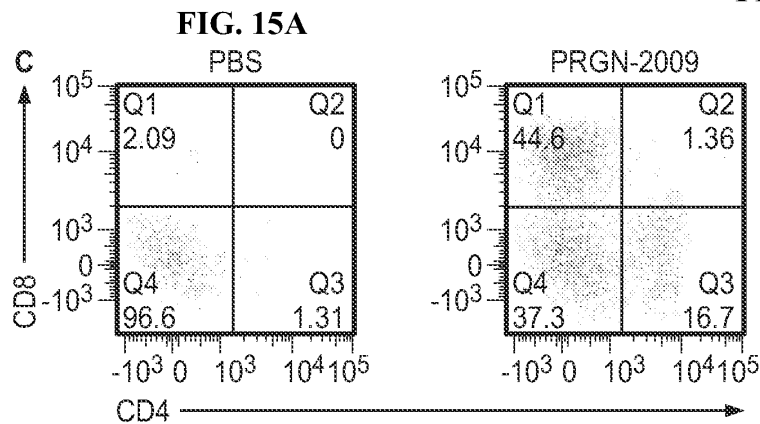
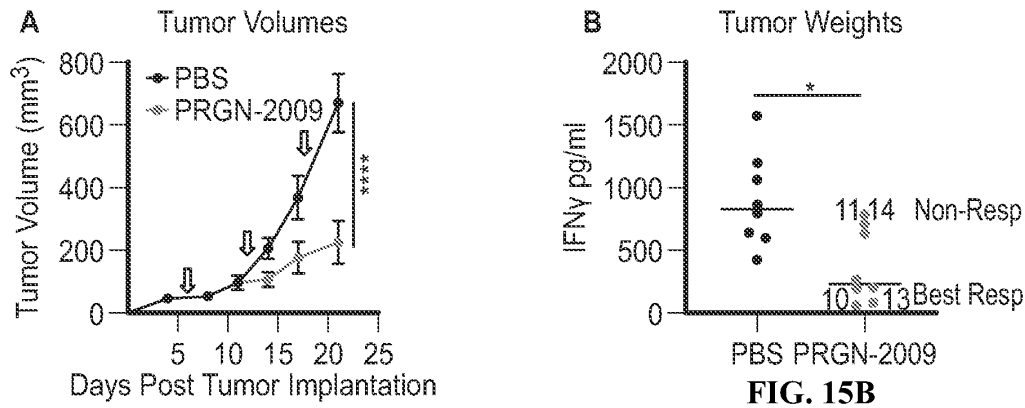
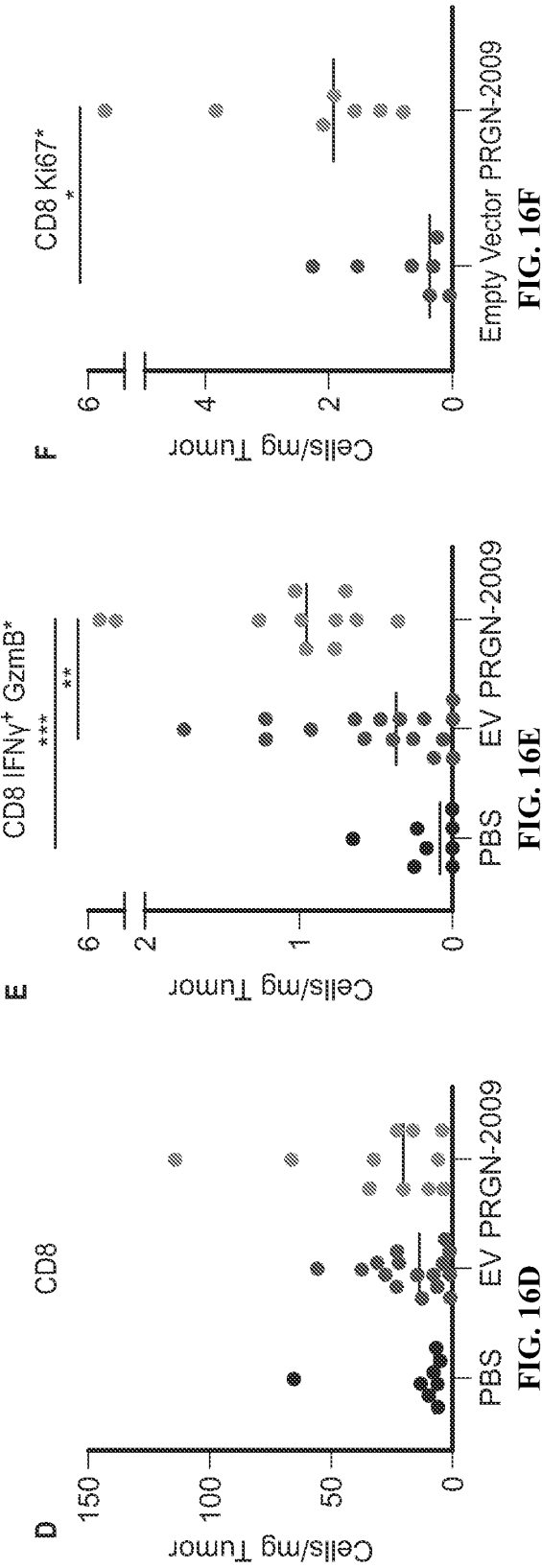
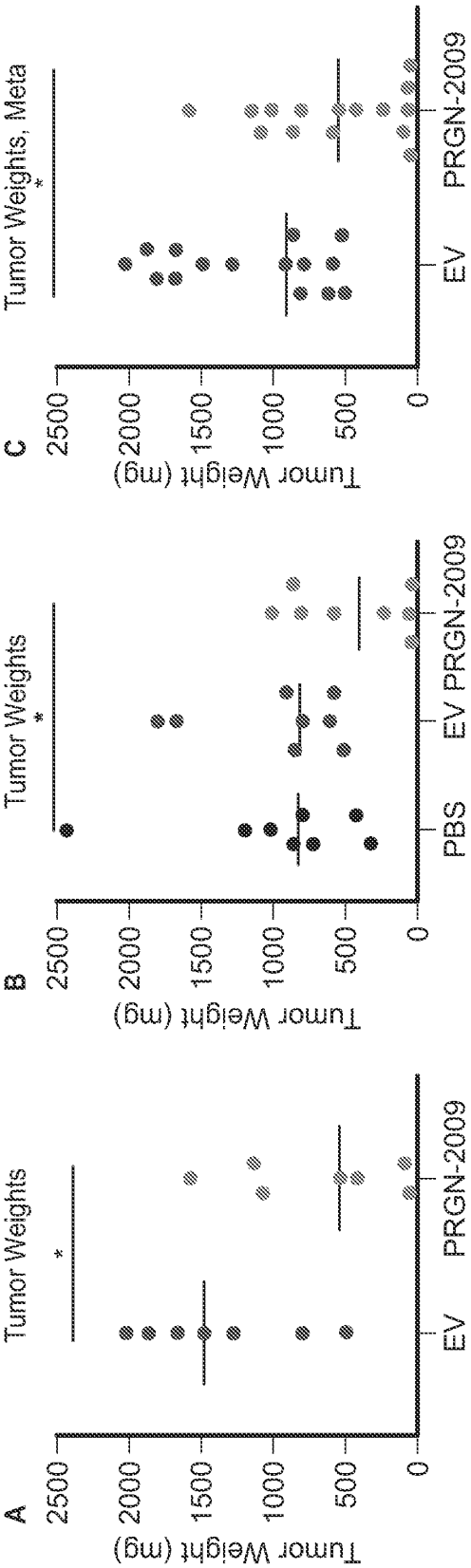


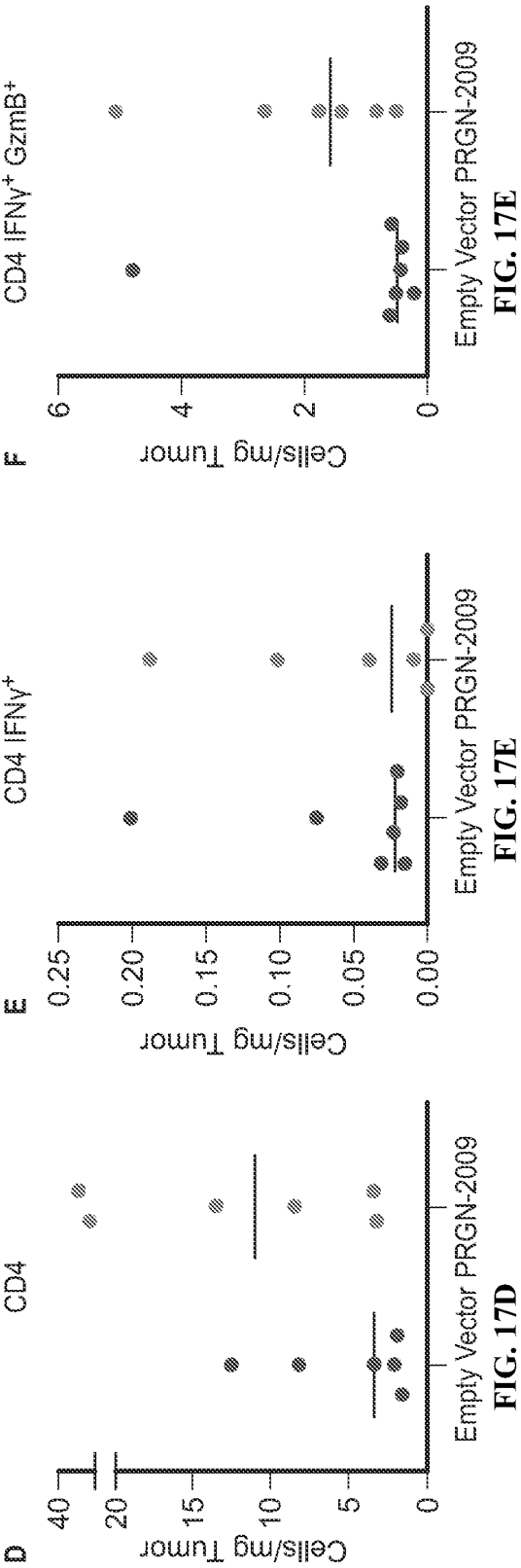
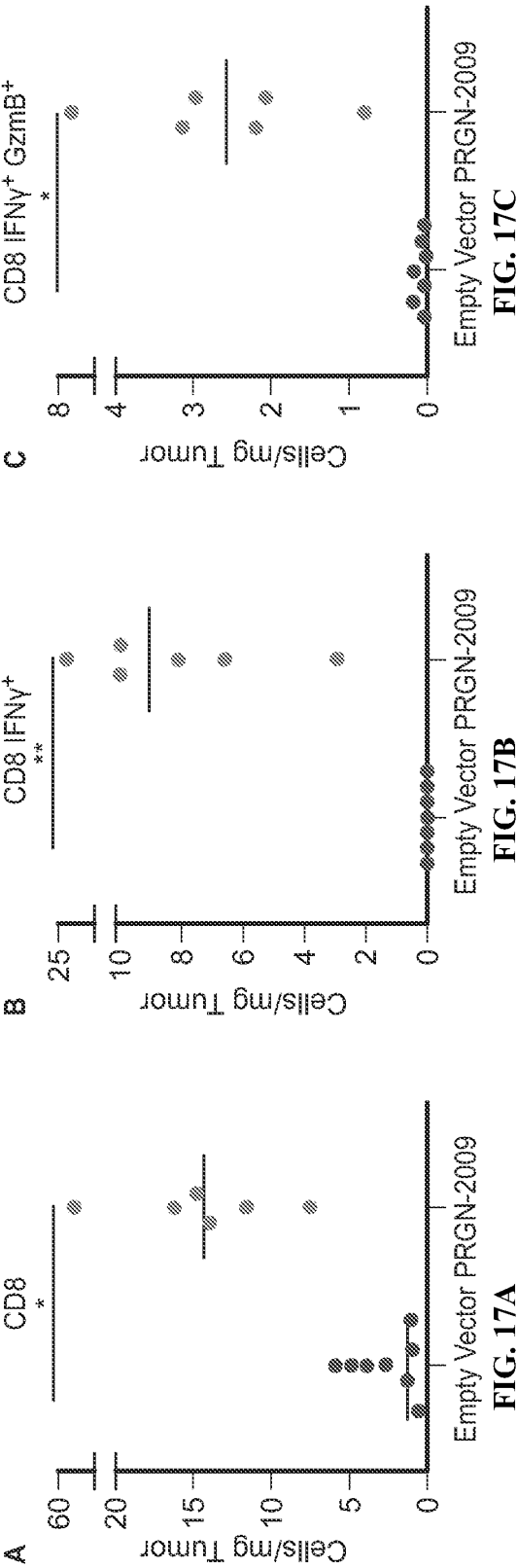
FIG. 13B (Cont.)

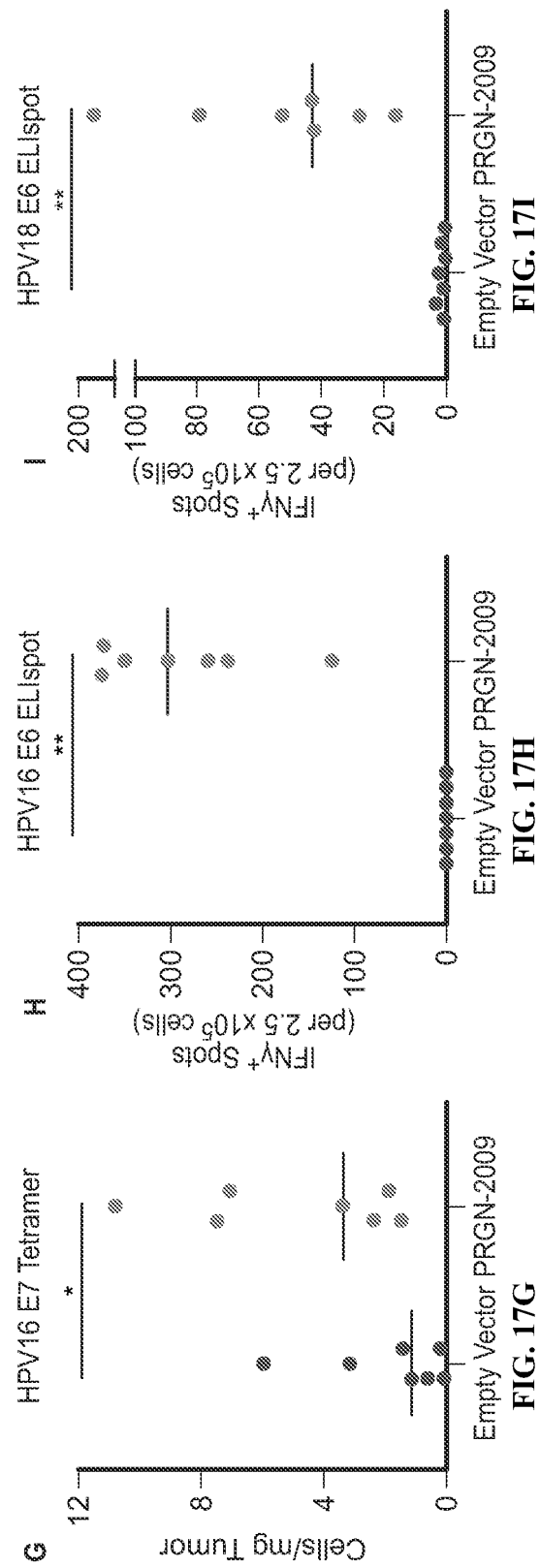


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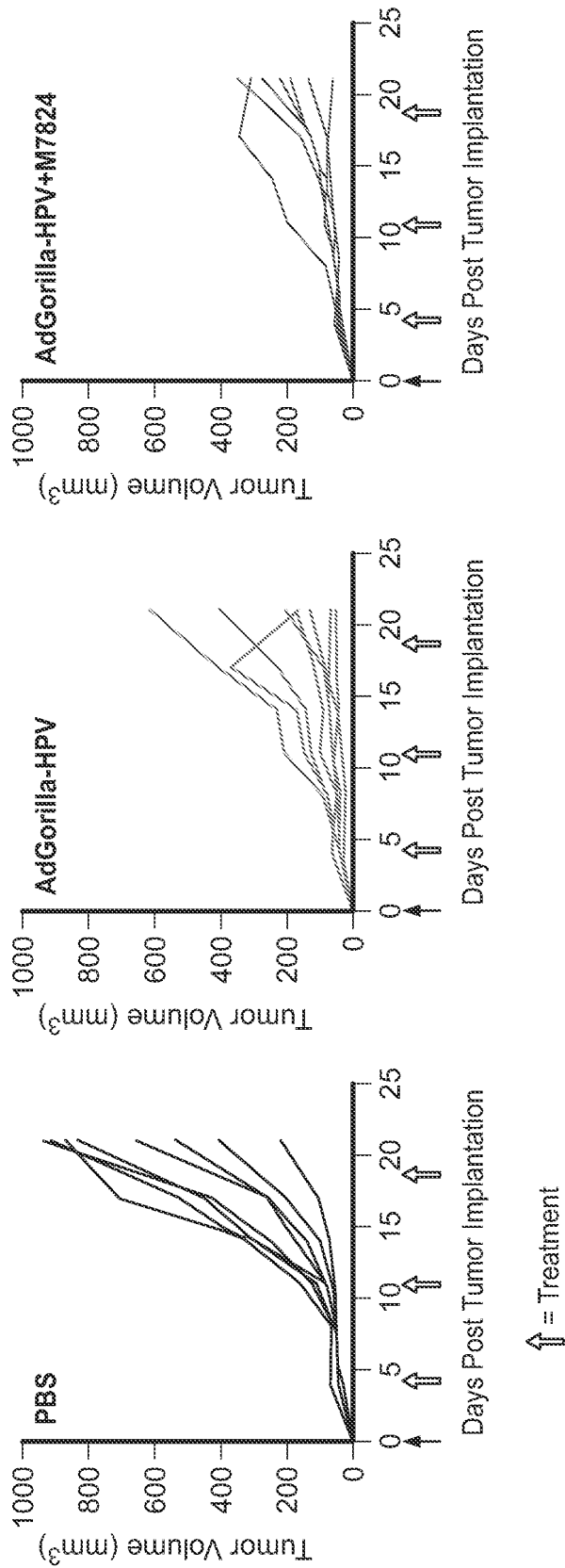


FIG. 18A

FIG. 18B

FIG. 18C

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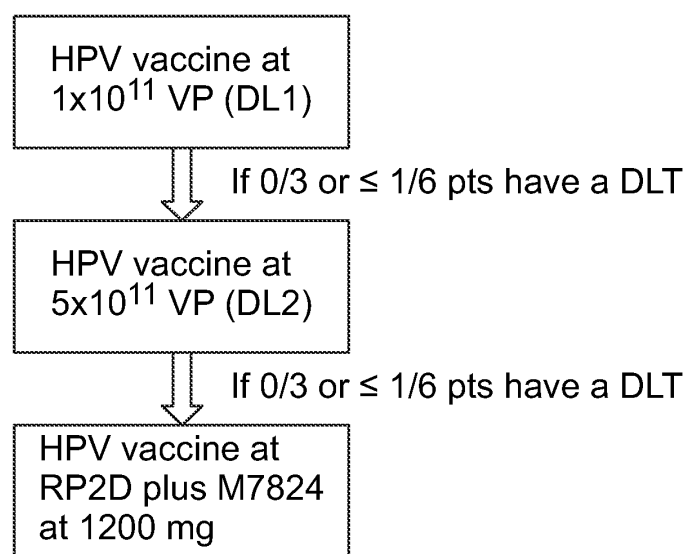


FIG. 19

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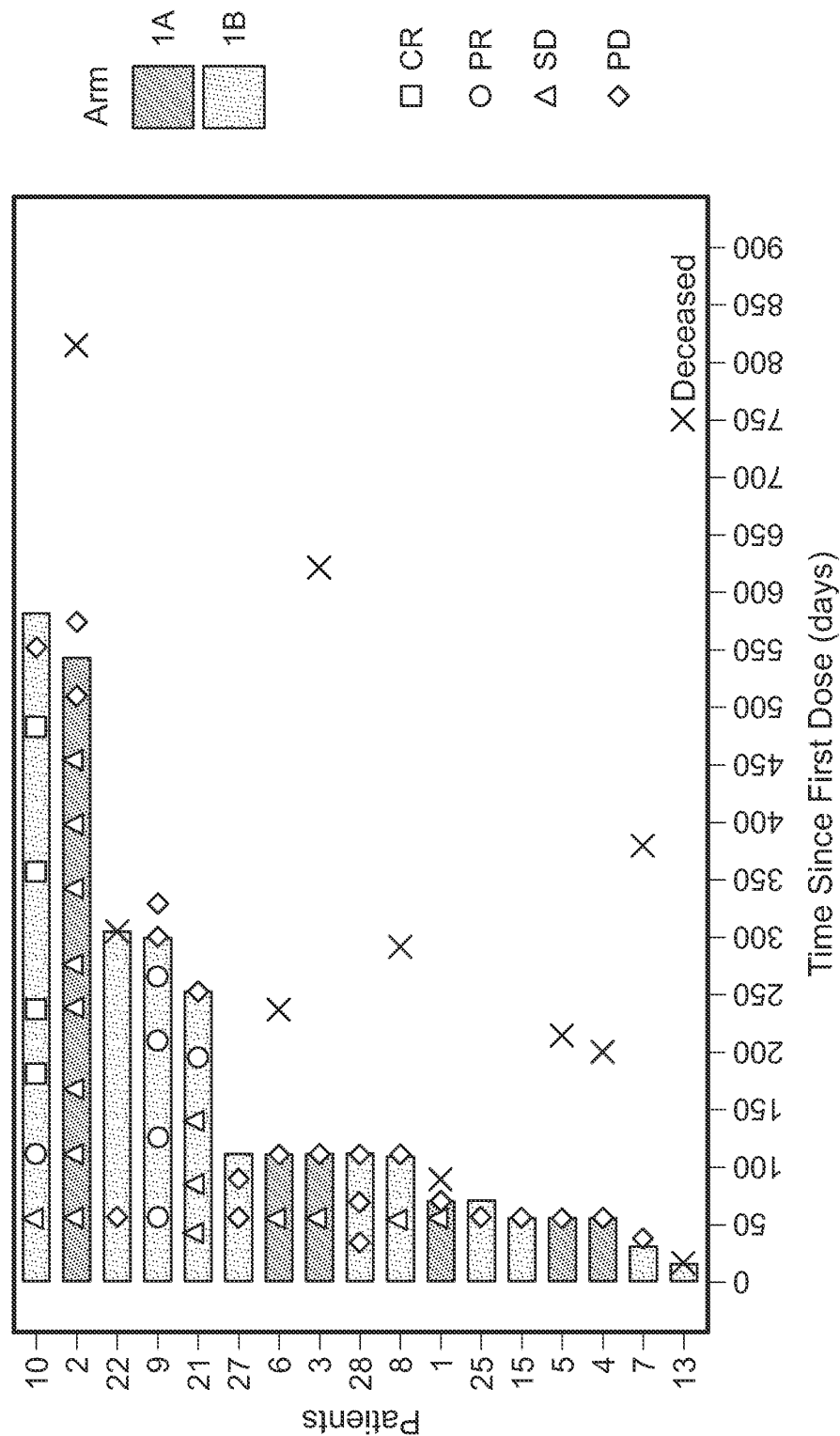


FIG. 20

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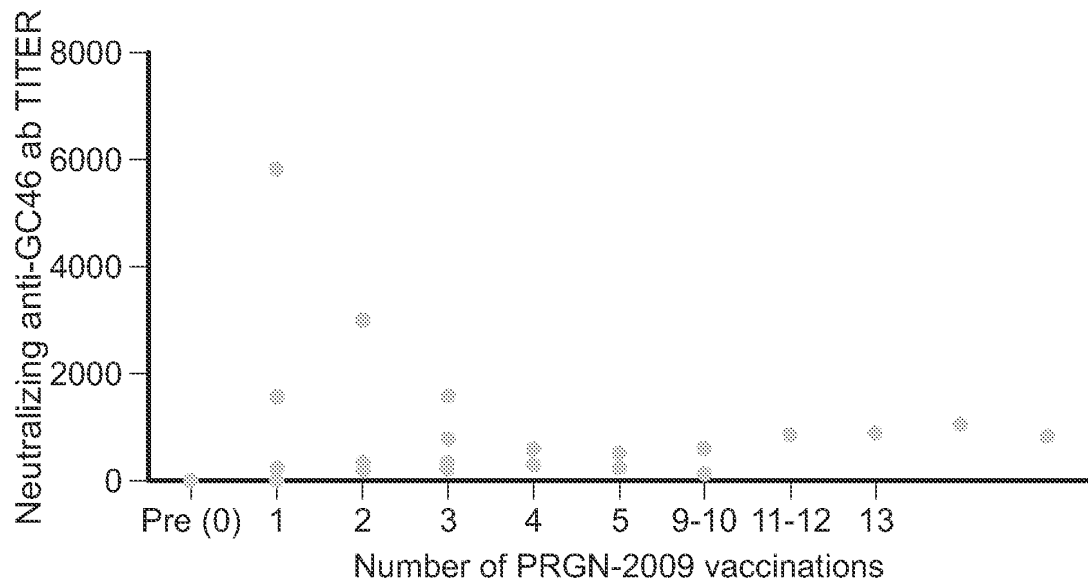


FIG. 21A

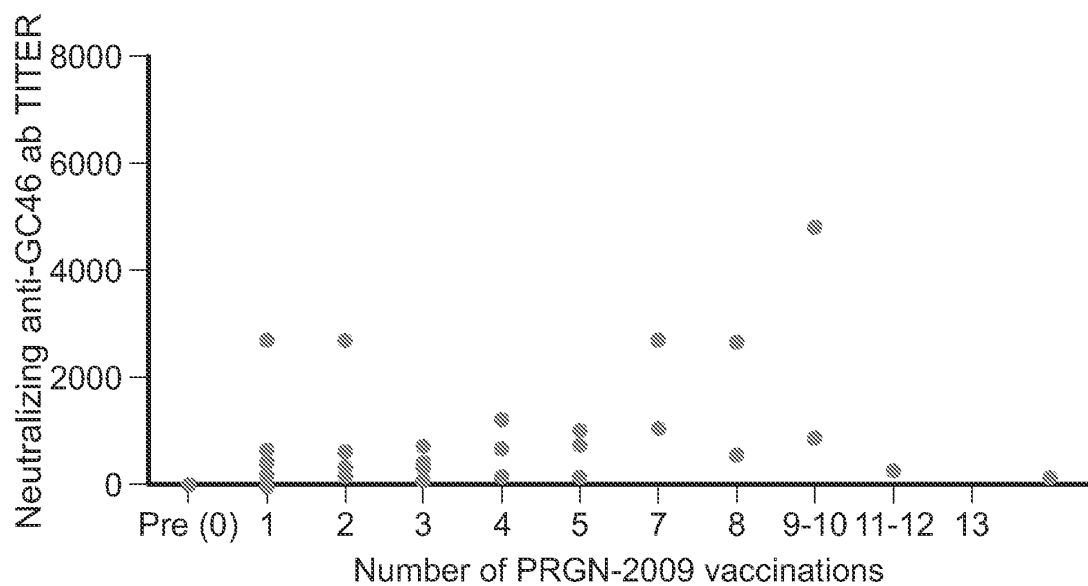


FIG. 21B

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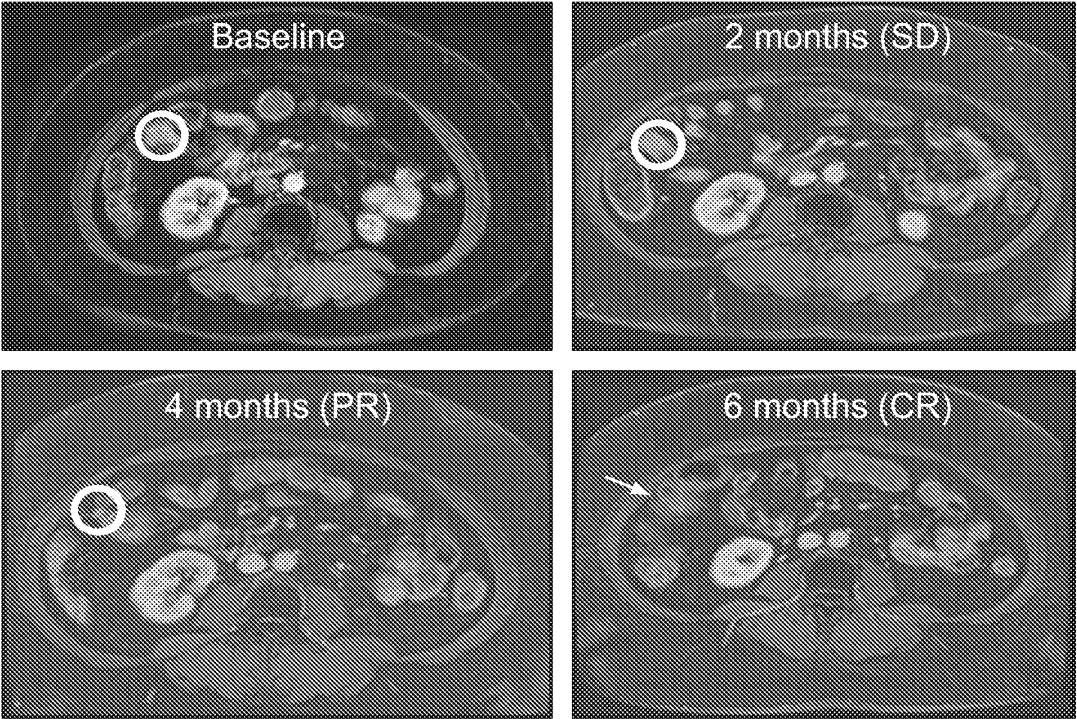


FIG. 22A

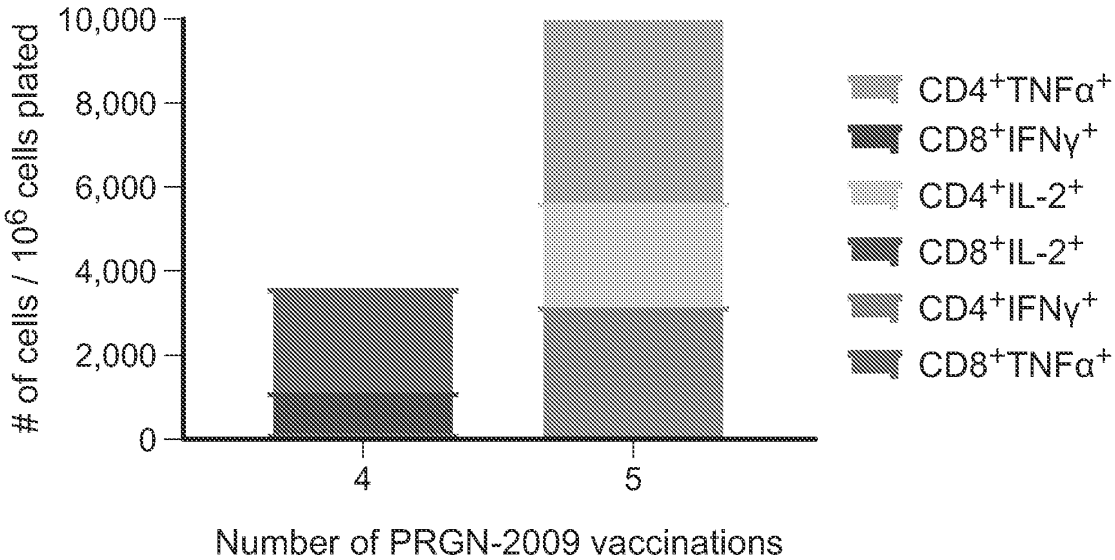


FIG. 22B

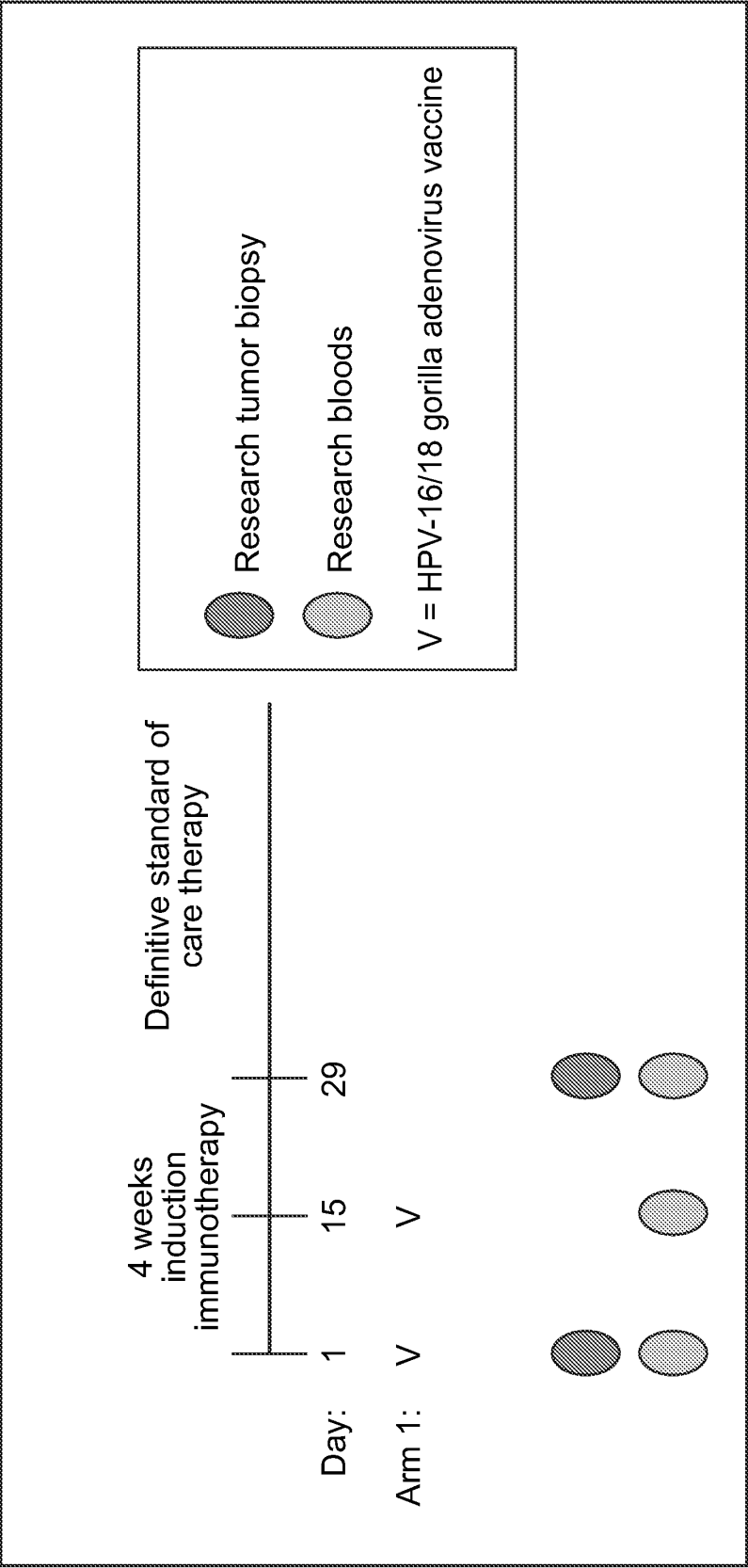


FIG. 23

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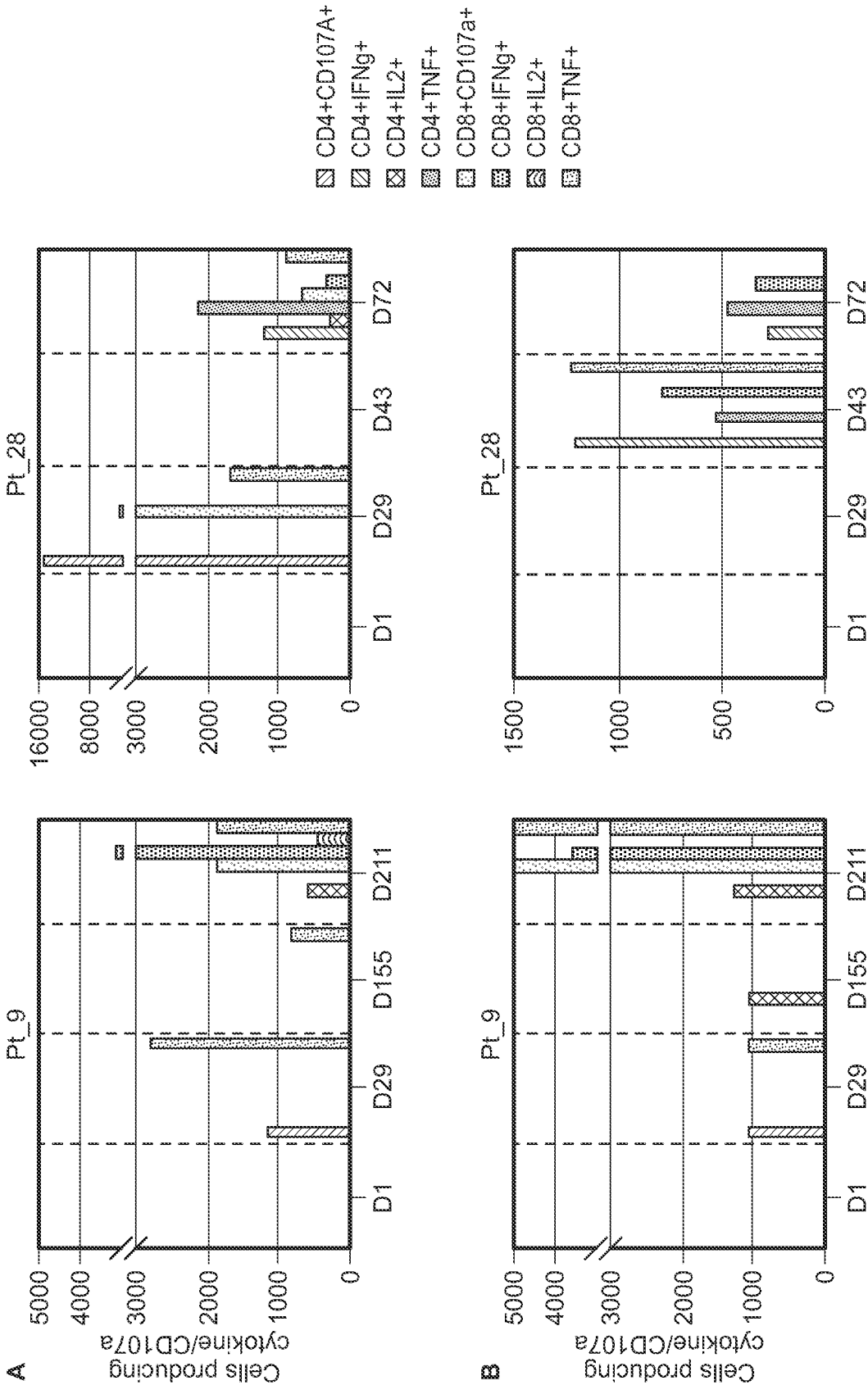


FIG. 24

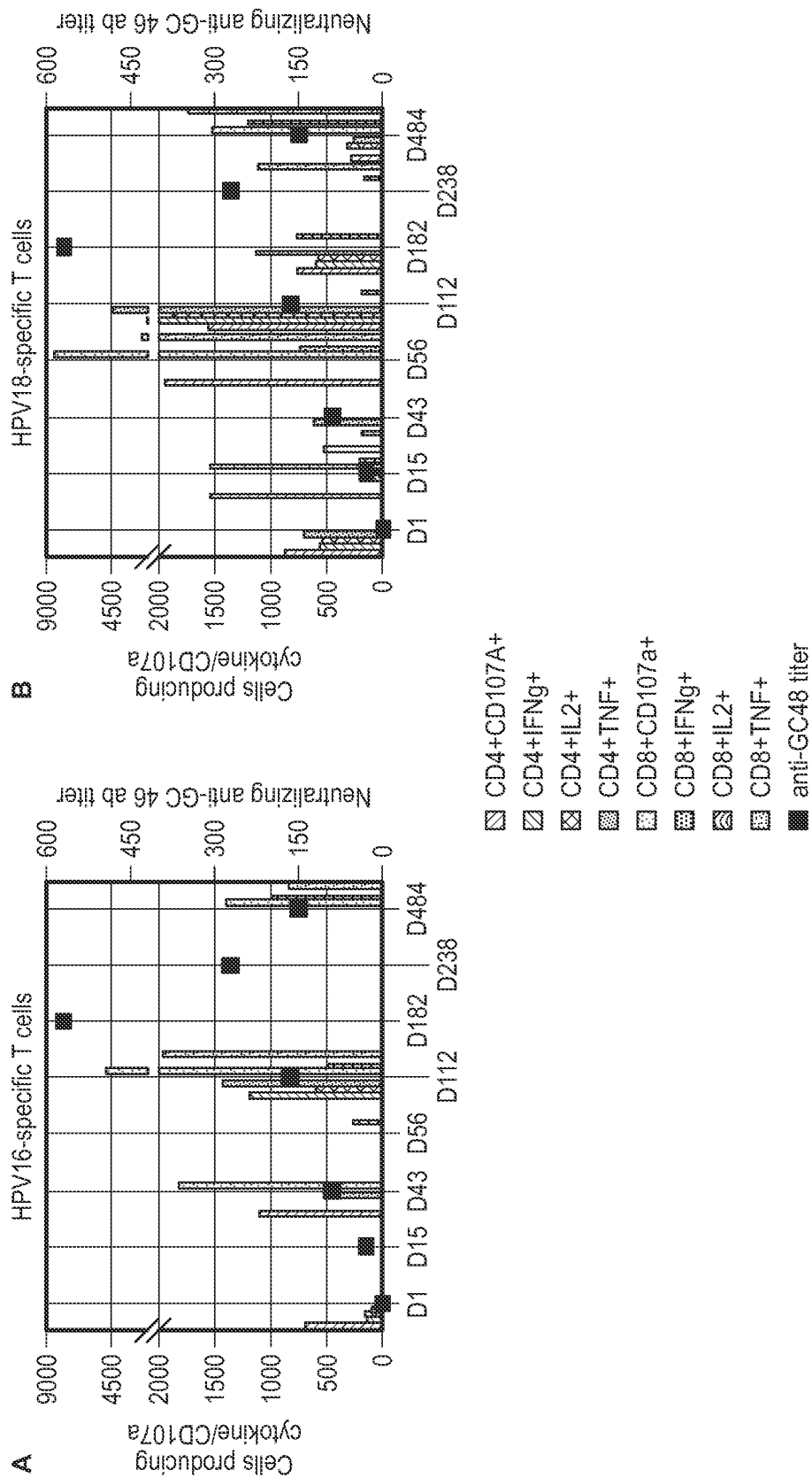


FIG. 25

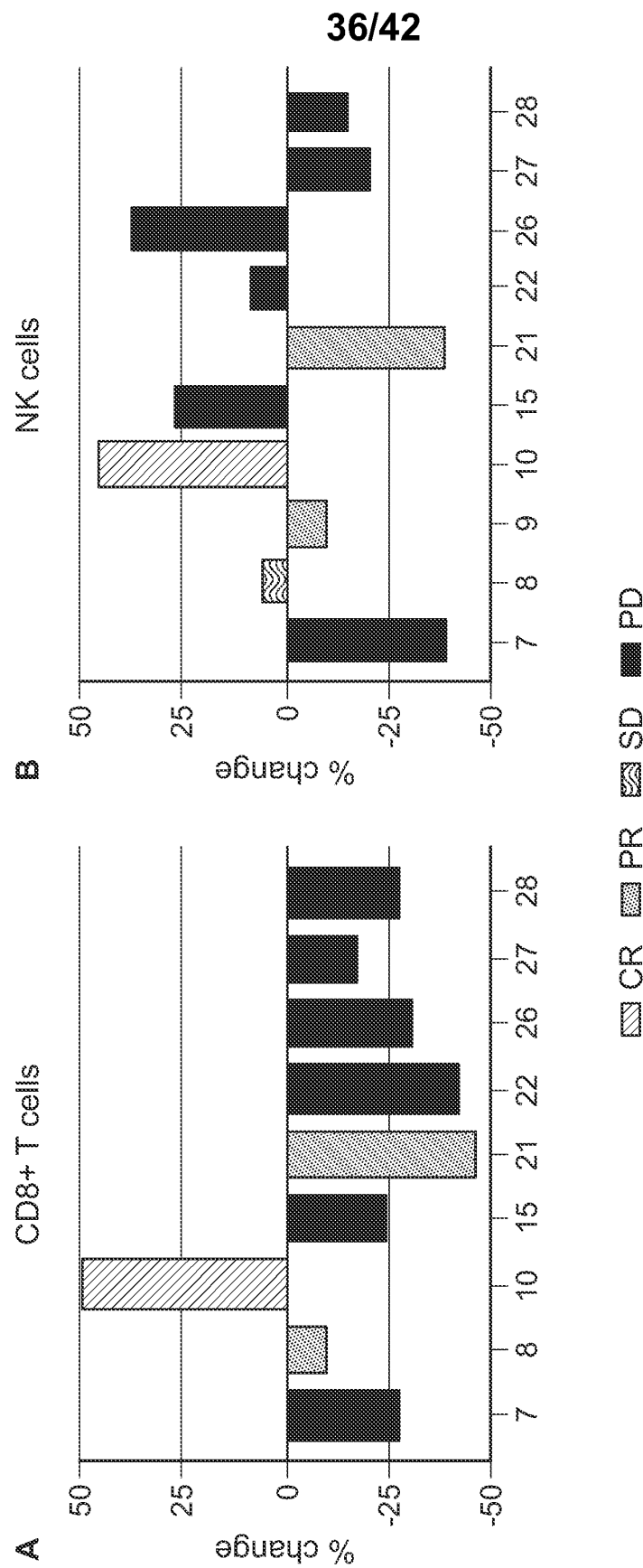


FIG. 26

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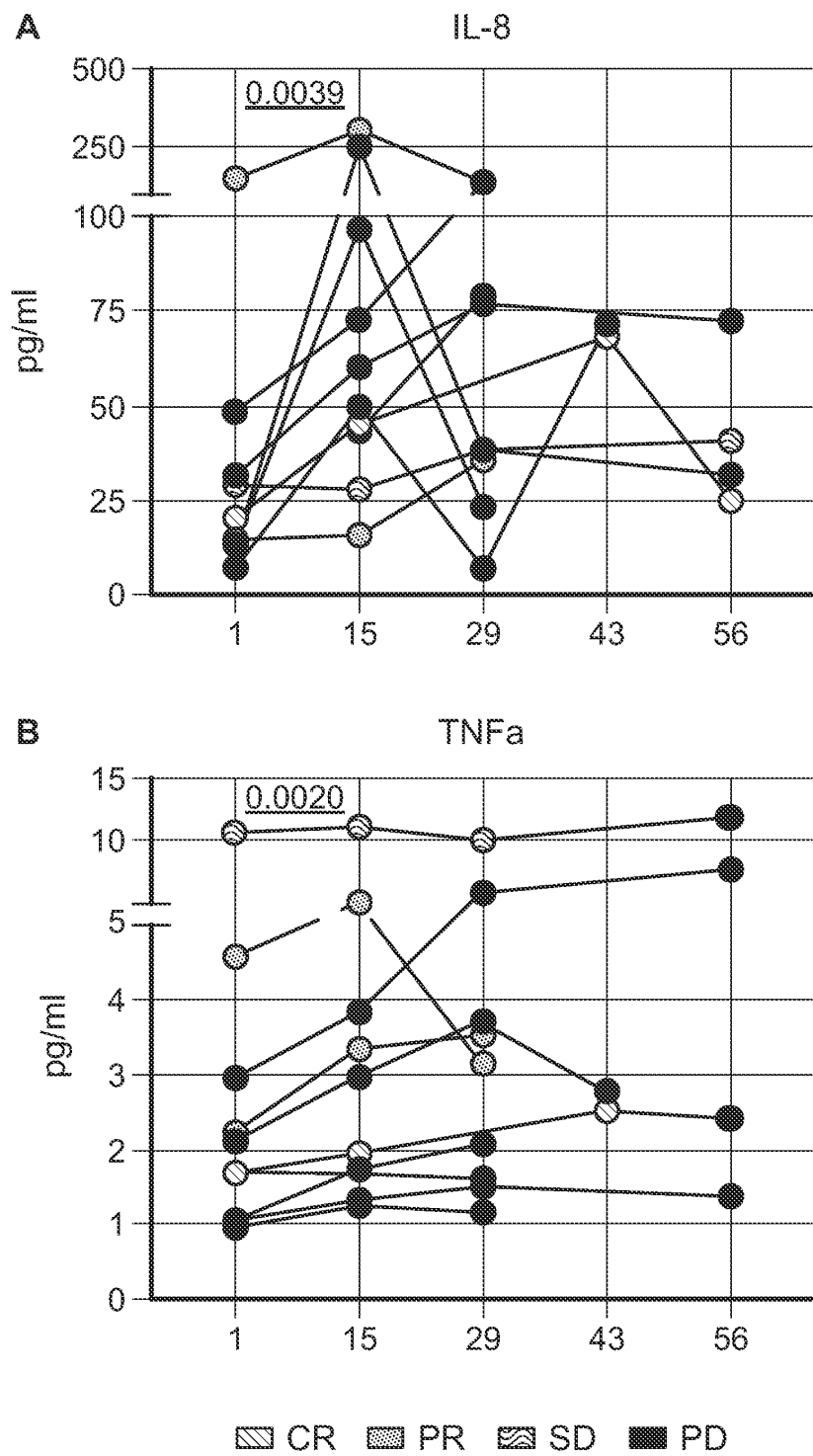


FIG. 27

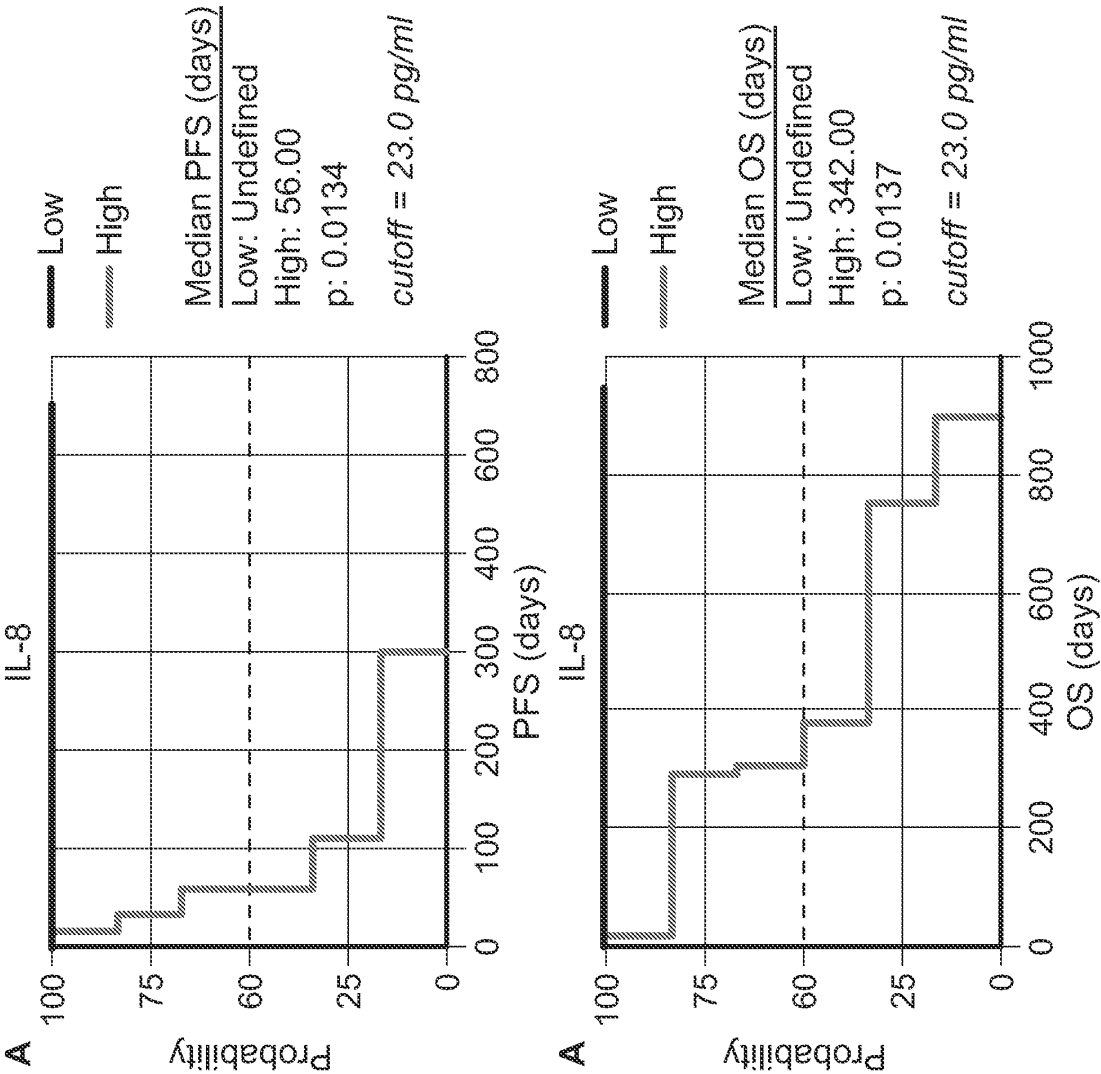
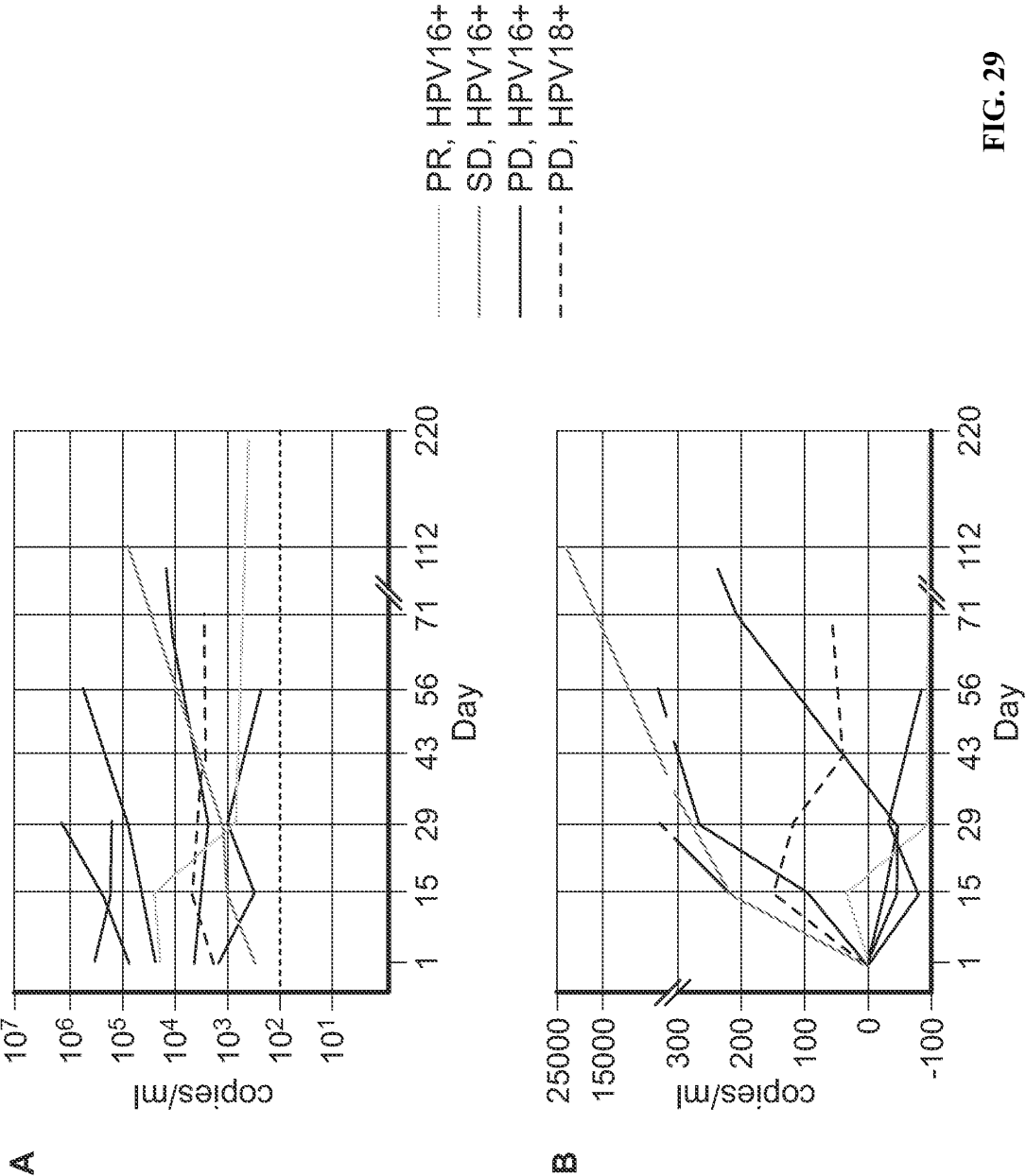


FIG. 28



alignment position		1.....11.....21.....31.....41.....51.....61.....71.....
HPV45-E6	(SEQ ID No: 325) 1	marfdpqr pyKLPDLCTE Lntslgavsi acvyckatle rteVQFAFK DLGIVYrdci ayaachKCID FYSRIrelry
HPV16-E6_pep5	(SEQ ID No: 117) 1	-----VVDFAFR DL-----
HPV16-E6_pep7	(SEQ ID No: 119) 1	---KLPQLCTE L-----
HPV16-E6_pep8	(SEQ ID No: 120) 1	-----FAFR DLGIVY-----
HPV18-E6_pep1	(SEQ ID No: 131) 1	-----
HPV18-E6_pep2	(SEQ ID No: 132) 1	-----KCID FYSRI-----
HPV18-E6_pep4	(SEQ ID No: 184) 1	-----
HPV18-E6_pep5	(SEQ ID No: 135) 1	---KLPDLCTE L-----
Agonist_pep1	(SEQ ID No: 176) 1	---KLPQLCTE V-----
		* * * *
alignment position		81.....91.....101.....111.....121.....131.....141.....151.....
HPV45-E6	1	ysnsvygetl eKITNTELYN LLIRCLRCok plnpaekrih lkdkrrfhsi aggyrggent ccdqargerl rrrretqv
HPV16-E6_pep5	1	-----
HPV16-E6_pep7	1	-----
HPV16-E6_pep8	1	-----
HPV18-E6_pep1	1	---KLNTGLYN L-----
HPV18-E6_pep2	1	-----
HPV18-E6_pep4	1	-----N LLIRCLRC-----
HPV18-E6_pep5	1	-----
Agonist_pep1	1	-----
		* *

FIG. 30

alignment position		1..... 11..... 21..... 31..... 41..... 51.....
HPV45-E7	(SEQ ID No: 326)	mhgpre TLQE IVLH lepqne ldpvdllcye qlse SEEND EADGVSHAQL PARR aepqrh
HPV18-E7_pep1	(SEQ ID No: 226)	-----
HPV18-E7_pep2	(SEQ ID No: 194)	-----
HPV18-E7_pep3	(SEQ ID No: 192)	-----
HPV18-E7_pep4	(SEQ ID No: 186)	-----
HPV18-E7_pep5	(SEQ ID No: 240)	----- TLQD IVLHL -----
HPV18-E7_pep6	(SEQ ID No: 182)	----- SEEND EIDGVNHQHL PARR -----
		* * * *
alignment position		61..... 71..... 81..... 91..... 101...
HPV45-E7	1	kilcvceckd grieltvess a EDLRTLQQL FLSTLSFVCP WCA tnq
HPV18-E7_pep1	1	----- DDLR AF QQL FLNTLS -----
HPV18-E7_pep2	1	----- FQQL FLNTL -----
HPV18-E7_pep3	1	----- QL FLNTLSFV -----
HPV18-E7_pep4	1	----- L FLNTLSFVCP WCA s-----
HPV18-E7_pep5	1	-----
HPV18-E7_pep6	1	-----
		* * *

FIG. 31

alignment position		1..... 11..... 21..... 31..... 41.....
HPV45-E7	(SEQ ID No: 326)	1 mhgpretlqe ivlhlepgne ldpvdllcye qlse SEEEND EADGVSHAQL
HPV18-E7_pep1	(SEQ ID No: 226)	1 -----
HPV18-E7_pep4	(SEQ ID No: 186)	1 -----
HPV18-E7_pep6	(SEQ ID No: 182)	1 ----- SEEEND EIDGVNHQHL
		* * *
alignment position		51..... 61..... 71..... 81..... 91..... 101...
HPV45-E7	1	PARR aepqrh kilcvckcd grieltvess aEDLRRLQQL FLSTLSFVCP WCAtnq
HPV18-E7_pep1	1	-----DDLRAFQQL FLNTLS-----
HPV18-E7_pep4	1	-----L FLNTLSFVCP WCAs-----
HPV18-E7_pep6	1	PARR ----- * ** *

FIG. 32