	Prime (Day 0)		*Boost (Day 14)*		
Group	Vaccine	Adjuvant	Vaccine	Adjuvant	N
1	300 μg A-1	TiterMax	300 μg A-1	TiterMax	3
2	300 μg A-1P	TiterMax	300 μg A-1P	TiterMax	3
3	300 μg B-1P	TiterMax	300 μg B-1P	TiterMax	3
4	300 μg D-1P	TiterMax	300 μg D-1P	TiterMax	3
5	300 μg C-1P	TiterMax	300 μg C-1P	TiterMax	3
6	300 μg A-1P	TiterMax	100 μg A-1P-VLP		3
7	100 μg A-1P-VLP		100 μg A-1P-VLP		3
8	100 μg A-1P-KLH		100 μg A-1P-KLH		3

Figure 1A

	Day 28 IgG Titer		Selectivity	Day 28 IgG Titer		Selectivity	Day 28 IgG Titer		Selectivity	Day 28 IgG Titer		Selectivity
Group	A-1P	A-1	A-1P/A-1	B-1P	B-1	B-1P/B-1	D-1P	D-10	D-1P/D-10	C-1P	C-1	C-1P/C-1
1	< 290	4050	< 0.045									
2	50.0	50.0	1.0									
3				> 7290	> 7290	1.0						
4							< 30.0	< 30.0	1.0			
5										270	< 50.0	> 7.0
6	> 7290	> 7290										
7	> 7290	> 7290										
8	> 7290	> 7290										

Figure 1B

		Prime			Boost				Day			
									94 (N=1)	104	108	115
IgM	Group	Vaccine	Adjuvant	Day	Vaccine	Adjuvant	Day	N	IgM Titer	IgM Titer	IgM Titer	IgM Titer
	A	A-1P	TiterMax	0	A-1P-VLP	None	14, 101	3	2.70E+03	2.67E+05	2.67E+05	1.05E+05
	B	A-1P-VLP	None	0	A-1P-VLP	None	14, 101	3	2.43E+04	4.05E+04	2.19E+05	8.91E+04
	C	A-1P-VLP	None	101	None	None	None	3		7.29E+04	1.70E+05	2.43E+04
IgG	Group								IgG Titer	IgG Titer	IgG Titer	IgG Titer
	A	A-1P	TiterMax	0	A-1P-VLP	None	14, 101	3	7.29E+04	1.70E+05	1.97E+06	1.97E+06
	B	A-1P-VLP	None	0	A-1P-VLP	None	14, 101	3	2.19E+05	6.56E+05	1.97E+06	1.97E+06
	C	A-1P-VLP	None	101	None	None	None	3		9.00E+02	1.22E+05	5.10E+05

Figure 2

	Vaccine						
Vaccine Prime (Day 0)	A-1	A-1P	B-1P	D-1P	C-1P	E-1P	No Treatment
Vaccine Boosts (Days 28, 56)	A-1-VLP	A-1P-VLP	B-1P-VLP	D-1P-VLP	C-1P-VLP	E-1P-VLP	No Treatment
N	4	4	4	4	4	4	3
Day 70 IgG Titer							
A-1P Titer	> 1.75E+06	> 1.75E+06					< 8.00E+02
A-1 Titer	> 1.75E+06	> 1.75E+06					< 8.00E+02
B-1P Titer			> 1.75E+06				< 8.00E+02
B-1 Titer			> 1.17E+06				< 8.00E+02
D-1P Titer				> 1.75E+06			< 8.00E+02
D-1 Titer				7.08E+04			< 8.00E+02
C-1P Titer					> 1.75E+06		< 8.00E+02
C-1 Titer					3.56E+05		ND
E-1P Titer				> 1.75E+06	> 1.75E+06	> 1.75E+06	ND
E-1 Titer						1.80E+05	ND
Selectivity							
A-1P/A-1	1.0	1.0					
B-1P/B-1			2.0				
D-1P/D-1				> 212			
C-1P/C-1					> 10.5		
E-1P/E-1						> 75	
E-1P/D-1				> 212			
E-1P/D-1P				1.0			
E-1P/C-1					> 10.5		
E-1P/C-1P					1.0		

Figure 3

SUBSTITUTE SHEET (RULE 26)

Group	Vaccine	Amount of each VLP	Adjuvant	N	Day 63 IgG Titer							
					A-1P IgG (mg/mL)	A-1P Titer	A-1 Titer	B-1P IgG (mg/mL)	B-1P Titer	B-1 Titer	C-1P Titer	C-1 Titer
1	A-1P, B-1P, C-1P-VLP	100 µg	1160 µg Alum	4	0.40	7.70E+04	9.55E+04	0.44	1.04E+05	< 5.00E+03	2.17E+05	1.31E+05
2	A-1P, B-1P, C-1P-VLP	10 µg	116 µg Alum	4	0.19	9.55E+04	< 5.00E+03	0.15	6.85E+04	< 5.00E+03	2.17E+05	1.31E+05
3	A-1P-VLP	100 µg	386 µg Alum	3	0.41	1.58E+05	1.22E+04					
4	B-1P-VLP	100 µg	386 µg Alum	4				0.59	2.44E+05	1.63E+04		
5	C-1P-VLP	100 µg	386 µg Alum	4							9.55E+05	2.17E+05
6	A-1P, B-1P, C-1P-VLP	100 µg	None	4	0.37	2.44E+05	2.17E+04	0.41	1.90E+05	< 1.90E+04	2.44E+05	4.33E+04
7	No Treat-ment	None	None	3		< 5.00E+03	< 5.00E+03		< 5.00E+03	< 5.00E+03	< 5.00E+03	< 5.00E+03

Figure 4A

Group	Vaccine	Amount of each VLP	Adjuvant	N	Day 63 IgG Titer						
					A-1P IgG (mg/mL)	A-1P Titer	A-1 Titer	B-1P IgG (mg/mL)	B-1P Titer	B-1 Titer	C-1P Titer	C-1 Titer
8	A-1P, B-1P, C-1P-VLP	100 µg	20 µg CPG 24555	3	0.51	8.60E+05	ND	0.41	8.60E+04	ND	3.86E+05	ND
9	A-1P, B-1P, C-1P-VLP	100 µg	1160 µg Alum	4	0.45	1.58E+06	ND	0.25	7.70E+04	ND	4.87E+05	ND
10	No Treatment	None	None	4		< 5.00E+03	ND		< 5.00E+03	ND	< 5.00E+03	ND
11	A-1P, B-1P, C-1P-VLP	100 µg	20 µg CPG 24555	3	0.55	2.72E+05	ND	0.64	3.86E+05	ND	3.86E+05	ND
12	A-1P, B-1P, C-1P-VLP	10 µg	20 µg CPG 24555	4	0.40	4.87E+05	ND	0.26	1.90E+05	ND	1.31E+05	ND
13	A-1P-VLP	100 µg	20 µg CPG 24555	4	0.79	7.70E+05	ND					
14	B-1P-VLP	100 µg	20 µg CPG 24555	4				0.53	2.17E+05	ND		
15	C-1P-VLP	100 µg	20 µg CPG 24555	3							1.22E+05	ND
16	A-1P, B-1P, C-1P-VLP	100 µg	12 µg AbISCO + 20 µg CPG 24555	4	0.96	3.88E+05	ND	0.88	3.02E+05	ND	6.85E+05	ND
17	No Treatment	None	None	3		< 5.00E+03	ND		< 5.00E+03	ND	< 5.00E+03	ND

Figure 4B

Selectivity			
Group	A-1P / A-1	B-1P / B-1	C-1P / C-1
1	2.9	> 20.8	1.5
2	> 19.1	> 13.7	1.5
3	17.2		
4		26.2	
5			6.0
6	15.4	> 13.7	24.5

Figure 4C

Group	Vaccine	Adjuvant	Route	N	A-1P IgG (mg/mL)	Day 227 A-1P IgG Titer	Day 27 A-1 IgG Titer	Selectivity (A-1P/A-1)	Day 27 A-1P IgG1 Titer	Day 27 A-1P IgG2a Titer	IgG1/IgG 2a ratio
1	A-1P-VLP	Alum	SC	3	0.44	8.60E+05	3.50E+05	11.3	5.00E+06	2.21E+06	34.8
2	A-1P-VLP	Alum, CpG 24555	IM	3	0.45	8.60E+05	1.22E+05	7.7	2.36E+06	2.36E+05	21.4
3	A-1P-VLP	CpG 24555	IM	3	0.97	1.58E+06	3.86E+05	5.4	8.60E+05	5.00E+06	0.17
4	A-1P-VLP	AbISCO, CpG 24555	IM	3	3.04	5.00E+06	8.60E+05	7.7	1.58E+06	1.22E+07	0.17
5	A-1P-VLP	Alum	IM	3	0.50	1.22E+06	5.96E+04	70.0	8.60E+05	5.85E+05	12.0
6	No Treat-ment	None	NA	3	< 0.0025	< 5.00E+03	< 5.00E+03	1.00	< 5.00E+03	< 5.00E+03	1.0

Figure 5

Group	Vaccine	μg Alum ($Al(OH)_3$)	N	ELISA Antigen	Day 21 or 28 IgG Titer	ELISA Antigen	Day 21 of 28 IgG Titer	Select-ivity	ELISA Antigen	Day 21 or 28 IgG Titer	ELISA Antigen	Day 21 or 28 IgG Titer	Select-ivity
1	A-1P-VLP	750	3	A-1P	3.86E+05	A-1	< 2.72E+04	> 17.2	A-1P	5.00E+05	A-1	< 2.72E+04	> 24.4
2	A-3P-VLP	750	3	A-3P	5.00E+05	A-3	< 2.72E+04	> 24.4	A-1P	2.36E+06	A-1	< 1.58E+04	> 149
3	A-2P-VLP	750	3	A-2P	1.58E+05	A-2	1.22E+05	1.7	A-1P	1.58E+05	A-1	< 1.58E+04	> 10.0
4	A-7P-VLP	750	3	A-7P	1.11E+05	A-7	< 1.58E+04	> 7.0	A-1P	5.00E+04	A-1	< 1.58E+04	> 3.2
5	A-8P-VLP	750	3	A-8P	1.58E+05	A-8	< 1.58E+04	> 10.0	A-1P	5.00E+05,	A-1	< 1.58E+04	> 31.6
6	B-1P-VLP	750	3	B-1P	3.86E+05	B-1	1.11E+05	5.4	B-1P	3.86E+05	B-1	3.86E+04	14.9
7	B-3P-VLP	750	3	B-3P	2.25E+05	B-3	< 1.58E+04	> 14.2	B-1P	2.36E+05	B-1	< 1.58E+04	> 14.9
8	B-5P-VLP	750	3	B-5P	< 2.72E+04	B-5	< 1.58E+04	1.7	B-1P	< 6.32E+04	B-1	< 1.58E+04	> 4.0
9	B-6P-VLP	750	3	B-6P	1.22E+05	B-6	< 1.58E+04	> 7.7	B-1P	> 2.72E+06	B-1	< 1.58E+04	> 172
10	C-1P-VLP	750	3	C-1P	1.22E+06	C-1	6.32E+05	4.7	C-1P	7.46E+05	C-1	6.32E+05	1.7
11	C-2P-VLP	750	2	C-2P	1.58E+05, 5.00E+05	C-2	< 1.58E+04, < 1.58E+04	> 20.8	C-1P	5.00E+04, 5.00E+05	C-1	< 1.58E+04, < 1.58E+04	> 17.4
12	C-3P-VLP	750	3	C-3P	> 1.85E+06	C-3	< 1.58E+04	> 117	C-1P	2.36E+05	C-1	< 1.58E+04	> 14.9
13	C-5P-VLP	750	3	C-5P	> 2.36E+06	C-5	< 1.58E+04	> 149	None	ND	None	ND	ND
14	C-1P-VLP	None	3	C-1P	>2.72E+06	C-1	1.11E+05	> 47.2	C-1P	> 2.72E+06	C-1	< 1.58E+04	> 172
15	No Treatment	None	3	A-1P	< 1.58E+04	A-1	< 1.58E+04	1.0					
				B-1P	< 1.58E+04	B-1	< 1.58E+04	1.0					
				C-1P	< 1.58E+04	C-1	< 1.58E+04	1.0					
16	F-1P-VLP	252	6	F-1P	1.22E+05	F-1	1.58E+05	0.77	None	ND	None	ND	ND
17	A-8P-VLP	252	6	None	ND	None	ND	ND	A-1P	2.36E+06	A-1	< 5.00E+02	>4729
18	No Treatment	None	6	A-1P	< 5.00E+02	A-1	< 5.00E+02	1.0					
				F-1P	< 5.00E+02	F-1	< 5.00E+02	1.0					

Figure 6

SUBSTITUTE SHEET (RULE 26)

IgG

Group	Vaccine	Adjuvant	Day Primed	Day Boosted	N	Day 105 Titer	Day 111 Titer	Day 115 Titer	Day 122 Titer
1	A-8P-VLP	Alum	0	14, 108	3	2.36E+06	7.46E+05	1.11E+07	7.46E+06
2	B-3P-VLP	Alum	0	14, 108	3	2.72E+05	2.36E+05	1.58E+06	6.32E+06
3	C-2P-VLP	Alum	0	14, 108	2	1.58E+04, 1.58E+05	1.58E+04, 1.58E+05	5.00E+05, 5.00E+05	1.58E+06, 1.58E+06
4	A-8P-VLP	Alum	108	None	3	< 5.00E+02	< 5.00E+02	3.86E+04	1.22E+05
5	B-3P-VLP	Alum	108	None	3	ND	< 5.00E+02	8.60E+04	5.96E+06
6	C-2P-VLP	Alum	108	None	3	ND	< 5.00E+02	2.72E+04	2.36E+05

Figure 7

Group	Group Averages			Day 21 IgG Titer		Select-ivity	Day 21 IgG Titer		Select-ivity	Day 21 IgG Titer		Select-ivity
	Vaccine	Alum (µg)	N	A-1P	A-1	A-1P/A-1	B-1P	B-1	B-1P/B-1	E-1P	E-1	E-1P/E-1
1	A-8P -VLP	0	3	2.36E+06	< 5.00E+03	> 472						
2	A-8P -VLP	504	3	5.00E+06	< 5.00E+03	> 1000						
3	A-3P -VLP	0	3	5.00E+06	2.72E+04	244						
4	A-3P -VLP	504	3	1.58E+07	2.25E+05	377						
5	B-3P -VLP	0	3				5.00E+06	< 5.00E+03	> 1000			
6	B-3P -VLP	504	3				8.60E+06	< 5.00E+03	> 1720			
7	C-2P -VLP	0	3							1.22E+06	< 5.00E+03	> 244
8	C-2P -VLP	504	3							1.58E+06	< 5.00E+03	> 316
9	C-5P -VLP	0	3							2.72E+06	< 5.00E+03	> 544
10	C-5P -VLP	504	3							3.86E+06	< 5.00E+03	> 772
11	A-8P -VLP, B-3P -VLP, C-2P -VLP	0	3	2.72E+06	< 5.00E+03	> 544	3.86E+06	< 5.00E+03	> 772	5.00E+05	< 5.00E+03	> 100
12	A-8P -VLP, B-3P -VLP, C-2P -VLP	750	3	7.46E+06	< 5.00E+03	> 1492	3.86E+06	< 5.00E+03	> 772	2.72E+05	< 5.00E+03	> 54.4
13	No Treatment	0	Pool of 3	< 5.00E+03	< 5.00E+03	1.0	< 5.00E+03	< 5.00E+03	1.0	< 5.00E+03	< 5.00E+03	1.0

Figure 8

Group Immunized	A-8P No Alum	Non Immunized
Antigen Tested	Spots	Spots
A-1P	16	1
A-1	26	3
A-8P	27	2
A-8	25	2
Irrelevant Peptide	17	ND
Unconjugated VLP	469 *	10
Irrelevant Protein	53	8

Group Immunized	A-3P No Alum	Non Immunized
Antigen Tested	Spots	Spots
A-1P	7	1
A-1	11	3
A-3P	60 *	1
A-3	29	0
Irrelevant Peptide	16	ND
Unconjugated VLP	204 *	10
Irrelevant Protein	47	8

Group Immunized	B-3P No Alum	B-3P 504 µg Alum	Non Immunized
Antigen Tested	Spots	Spots	Spots
B-1P	6	5	0
B-1	10	4	1
B-3P	7	1	2
B-3	12	7	3
Irrelevant Peptide	10	5	ND
Unconjugated VLP	267 *	356 *	10
Irrelevant Protein	17	35	8

Group Immunized	C-2P No Alum	C-2P 504 µg Alum	Non Immunized
Antigen Tested	Spots	Spots	Spots
C-1P	24	9	0
C-1	22	6	3
C-2P	47	15	2
C-2	29	9	1
Irrelevant Peptide	22	11	ND
Unconjugated VLP	350 *	402 *	10
Irrelevant Protein	58	112	8

Figure 9

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1    MAEPRQEFEV MEDHAGTYGL GDRKDQGGYT MHQDQEGDTD AGLKESPLQT PTEDGSEEPG
61   SETSDAKSTP TAEDVTAPLV DEGAPGKQAA AQPHTEIPEG TTAEEAGIGD TPSLEDEAAG
121  HVTQARMVSK SKDGTGSDDK KAKGADGKTK IATPRGAAPP GQKGQANATR IPAKTPPAPK
181  TPPSSGEPPK SGDRSGYSSP GSPGTPGSRS RTPSLPTPPT REPKKVAVVR TPPKSPSSAK
241  SRLQTAPVPM PDLKNVKSKI GSTENLKHQP GGGKVQIINK KLDLSNVQSK CGSKDNIKHV
301  PGGGSVQIVY KPVDLSKVTS KCGSLGNIHH KPGGGQVEVK SEKLDFKDRV QSKIGSLDNI
361  THVPGGGNKK IETHKLTFRE NAKAKTDHGA EIVYKSPVVS GDTSPRHLSN VSSTGSIDMV
421  DSPQLATLAD EVSASLAKQG L
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Figure 10