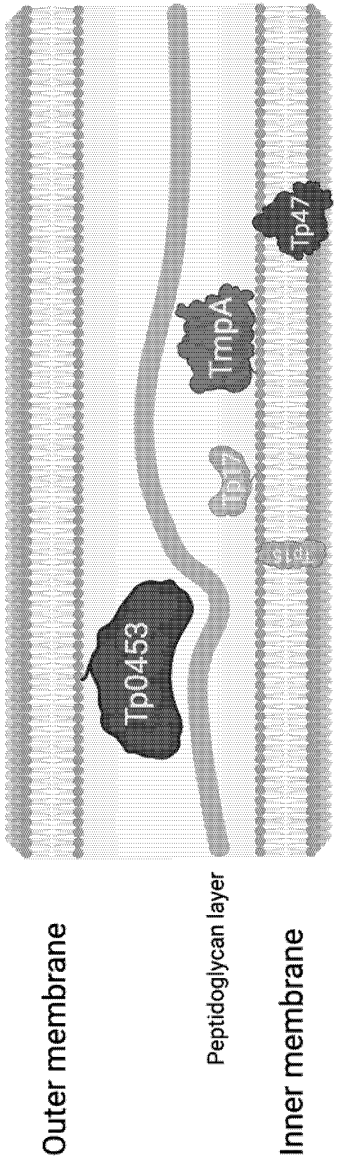

Tp0453
Tp17
TmpA
Tp47
Outer membrane
Peptidoglycan layer
Inner membrane

FIGURE 1

Nomenclature	Size (kDa)	Function	Specificity to T. pallidum
Tp15	15	Lipoprotein	Yes
Tp17	17	Periplasmic membrane protein	Yes
Tp47	47	Lipoprotein, carboxypeptidase	Yes
TP0453	30.5	Putative lipoprotein Inner surface ;lipid/glycolipid carrier	Yes
TmpA	44.5	Lipoprotein	Yes

FIGURE 2

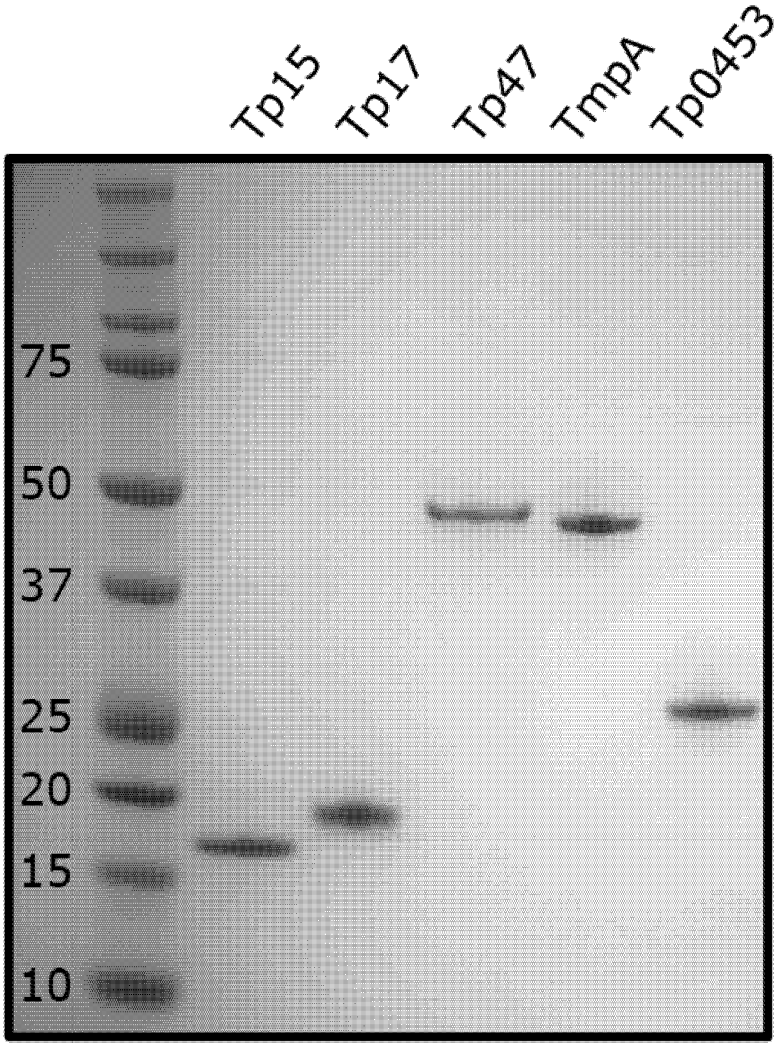


FIGURE 3

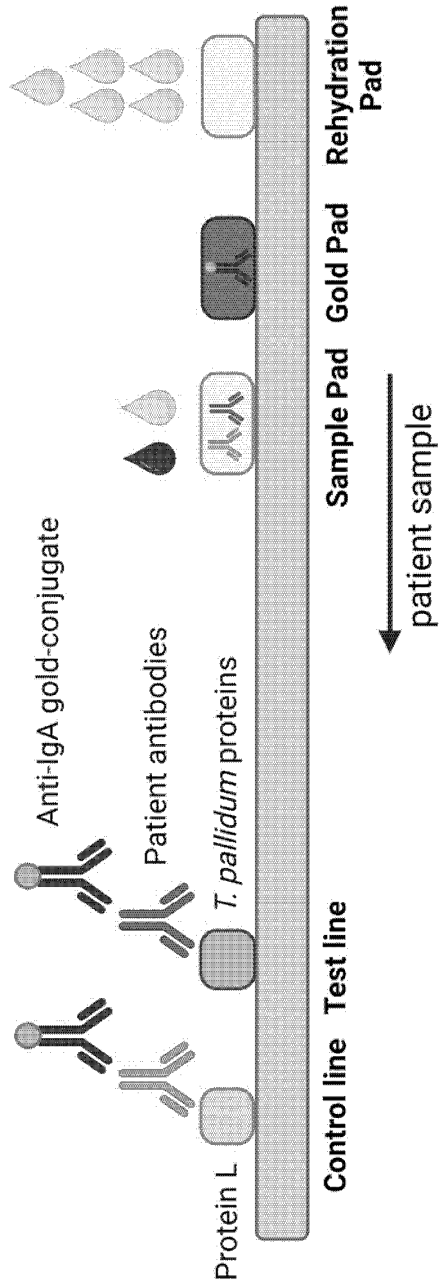

Anti-IgA gold-conjugate
Patient antibodies
T. pallidum proteins
Protein L
Control line
Test line
Sample Pad
Gold Pad
Rehydration Pad
patient sample

FIGURE 4

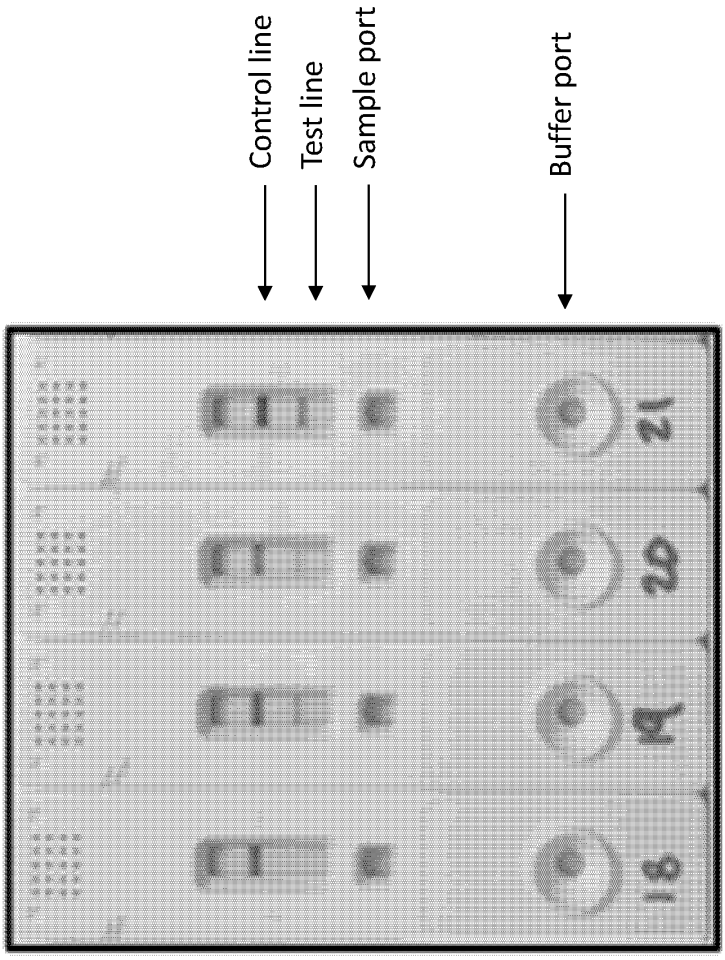


FIGURE 5

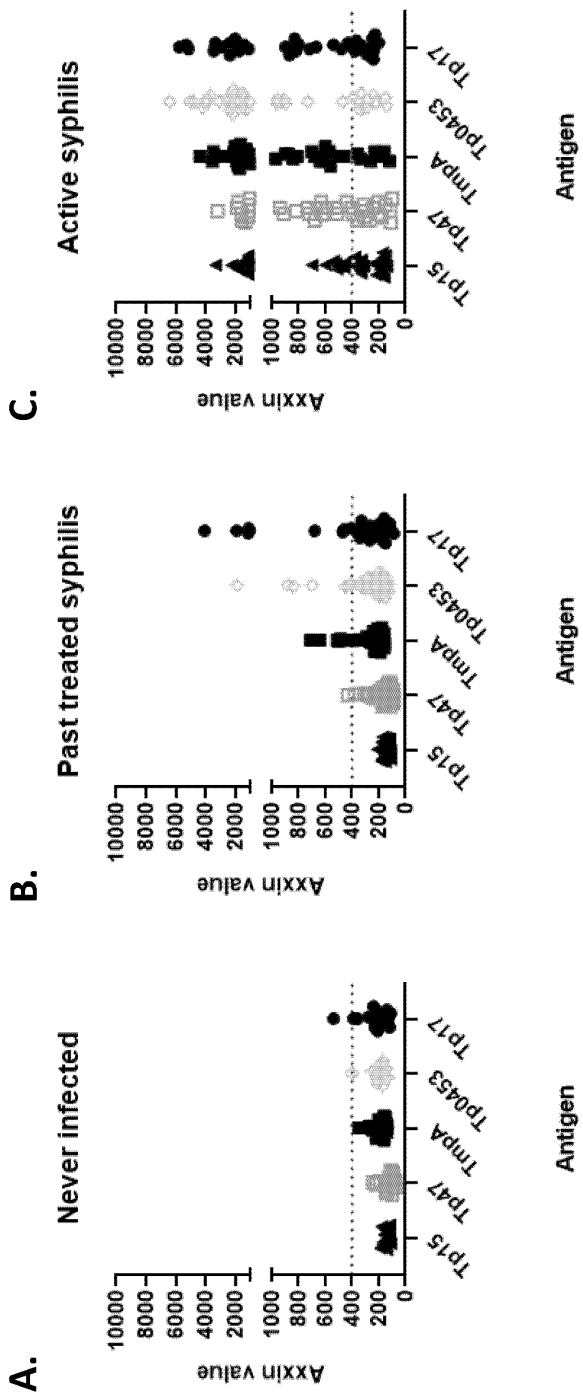

A.
Never infected
B.
Past treated syphilis
C.
Active syphilis
Axxin value
10000
8000
6000
4000
2000
1000
800
600
400
200
0
TP15
TP47
TmpA
TP0453
TP17
Antigen

FIGURE 6

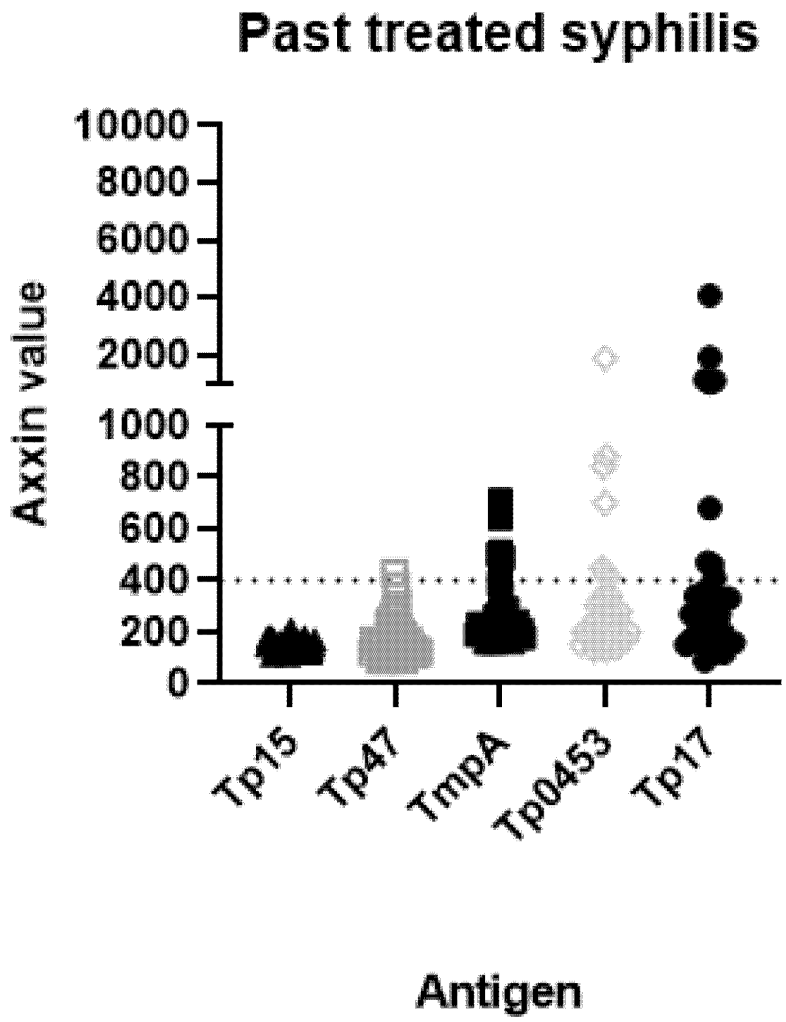

Past treated syphilis
Axxin value
10000
8000
6000
4000
2000
1000
800
600
400
200
0
Tp15
Tp47
TmpA
Tp0453
Tp17
Antigen

FIGURE 7

Single antigen (tested 40 positive, 40 past-treated, 17 negative)										
	Tp0453 0.2 mg/mL		Tp17 0.2 mg/mL		TmpA 0.2 mg/mL		Tp47 0.2 mg/mL		Tp15 2 mg/mL	
Sensitivity	70%	28/40	70%	28/40	80%	32/40	65%	26/40	53%	21/40
Past treated specificity	78%	31/40	73%	29/40	80%	32/40	95%	38/40	100%	40/40
Never infected specificity	94%	16/17	94%	16/17	100%	17/17	100%	17/17	100%	17/17
Overall specificity	82%	47/57	79%	45/57	86%	49/57	96%	55/57	100%	57/57

FIGURE 8

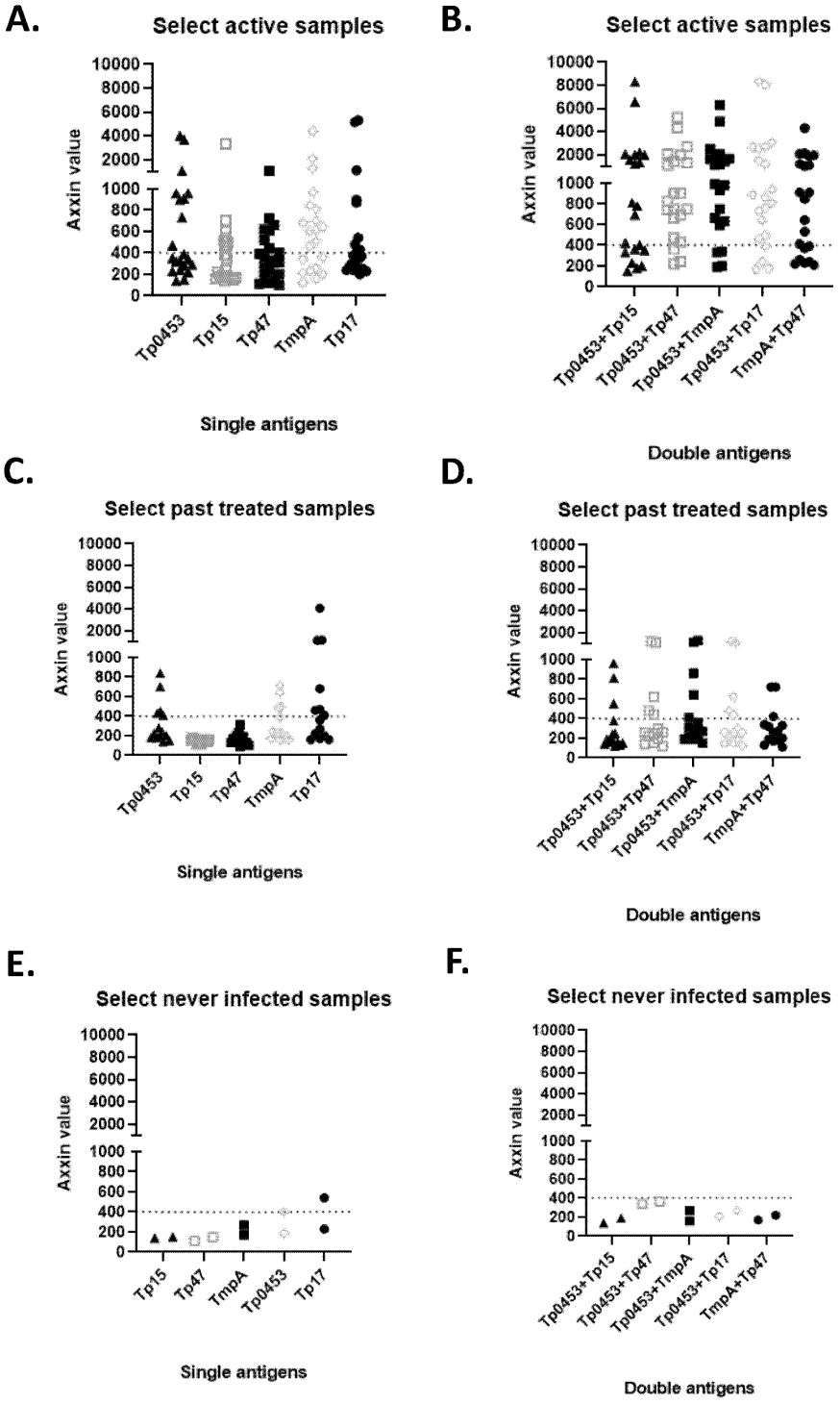

A.
Select active samples
Axxin value
10000
8000
6000
4000
2000
1000
800
600
400
200
0
Tp0453
Tp15
Tp47
TmpA
Tp17
Single antigens
B.
Select active samples
Axxin value
Tp0453+Tp15
Tp0453+Tp47
Tp0453+TmpA
Tp0453+Tp17
TmpA+Tp47
Double antigens
C.
Select past treated samples
Axxin value
Single antigens
D.
Select past treated samples
Axxin value
Double antigens
E.
Select never infected samples
Axxin value
Tp15
Tp47
TmpA
Tp0453
Tp17
Single antigens
F.
Select never infected samples
Axxin value
Double antigens

FIGURE 9

	Double antigen (tested 21 positive, 14 past-treated, 2 negative)									
Tp0453	0.15mg/mL		0.15mg/mL		0.15mg/mL		0.15mg/mL			
Tp47	0.15mg/mL								0.15mg/mL	
Tp17			0.15mg/mL							
TmpA					0.15mg/mL				0.15mg/mL	
Tp15							2mg/mL			
Sensitivity	86%	18/21	81%	17/21	81%	17/21	67%	14/21	67%	14/21
Past treated specificity	64%	9/14	43%	6/14	64%	9/14	79%	11/14	79%	11/14
Never infected specificity	100%	2/2	100%	2/2	100%	2/2	100%	2/2	100%	2/2
Overall specificity	69%	11/16	50%	8/16	69%	11/16	81%	13/16	81%	13/16

FIGURE 10

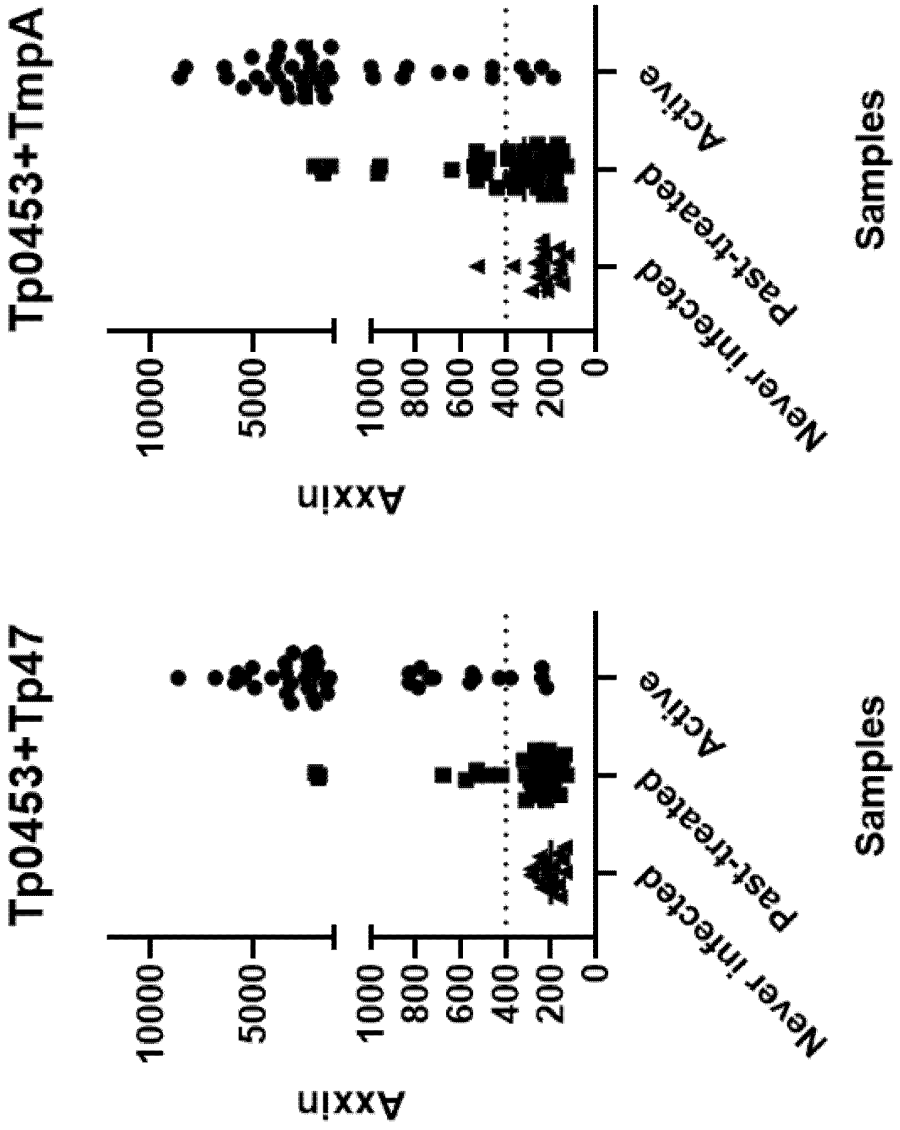

Tp0453+TmpA
Axxin
10000
5000
1000
800
600
400
200
0
Never infected
Past-treated
Active
Samples
Tp0453+Tp47
Axxin
10000
5000
1000
800
600
400
200
0
Never infected
Past-treated
Active
Samples

FIGURE 11

	Double antigens (tested 40 positive, 40 past-treated, 17 negative)			
Tp0453	0.15mg/mL		0.15mg/mL	
Tp47	0.15mg/mL			
TmpA			0.15mg/mL	
Sensitivity	90%	36/40	90%	36/40
PT Specificity	78%	31/40	63%	25/40
Neg Specificity	100%	17/17	94%	16/17
Overall specificity	84%	48/57	72%	41/57

FIGURE 12

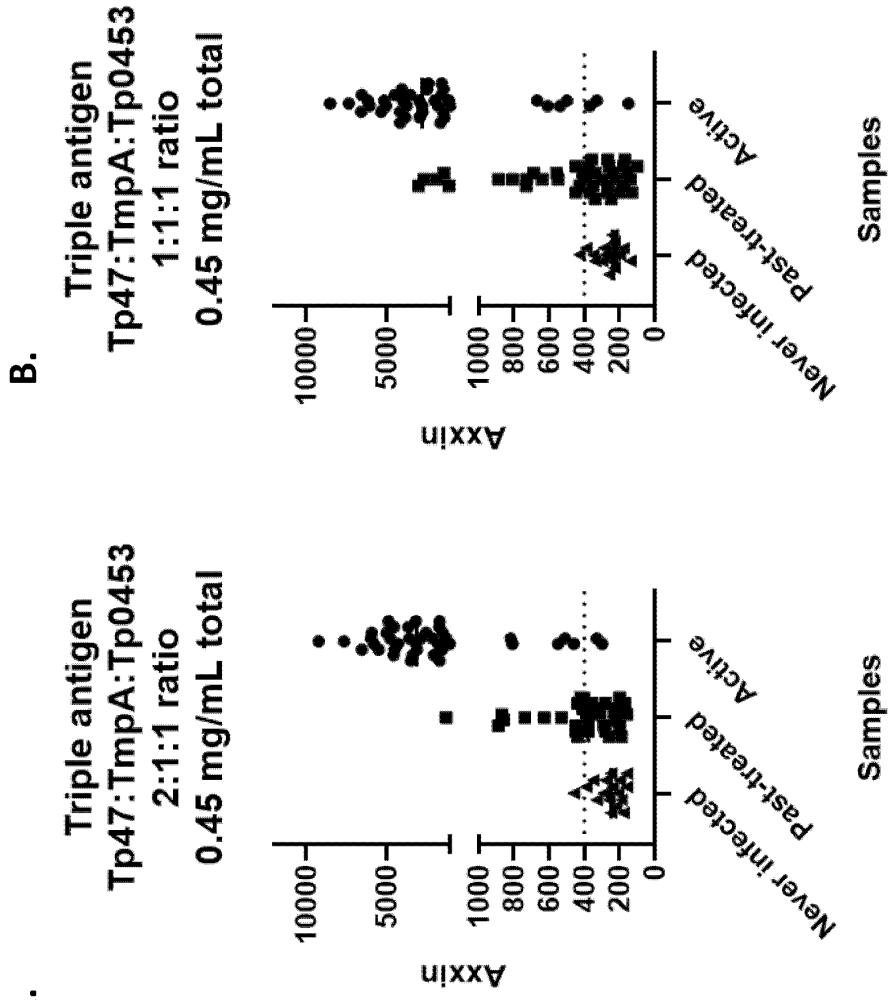

A.
Triple antigen
Tp47:TmpA:Tp0453
2:1:1 ratio
0.45 mg/mL total
Axxin
10000
5000
1000
800
600
400
200
0
Never infected
Past-treated
Active
Samples
B.
Triple antigen
Tp47:TmpA:Tp0453
1:1:1 ratio
0.45 mg/mL total
Axxin
10000
5000
1000
800
600
400
200
0
Never infected
Past-treated
Active
Samples

FIGURE 13

	Triple antigens (tested 40 positive, 40 past-treated, 17 negative)			
Tp0453	0.11 mg/mL		0.15 mg/mL	
TmpA	0.11 mg/mL		0.15 mg/mL	
Tp47	0.23 mg/mL		0.15 mg/mL	
Sensitivity	95%	38/40	93%	37/40
PT Specificity	58%	23/40	55%	22/40
Neg Specificity	94%	16/17	94%	16/17
Overall specificity	68%	39/57	67%	38/57

FIGURE 14

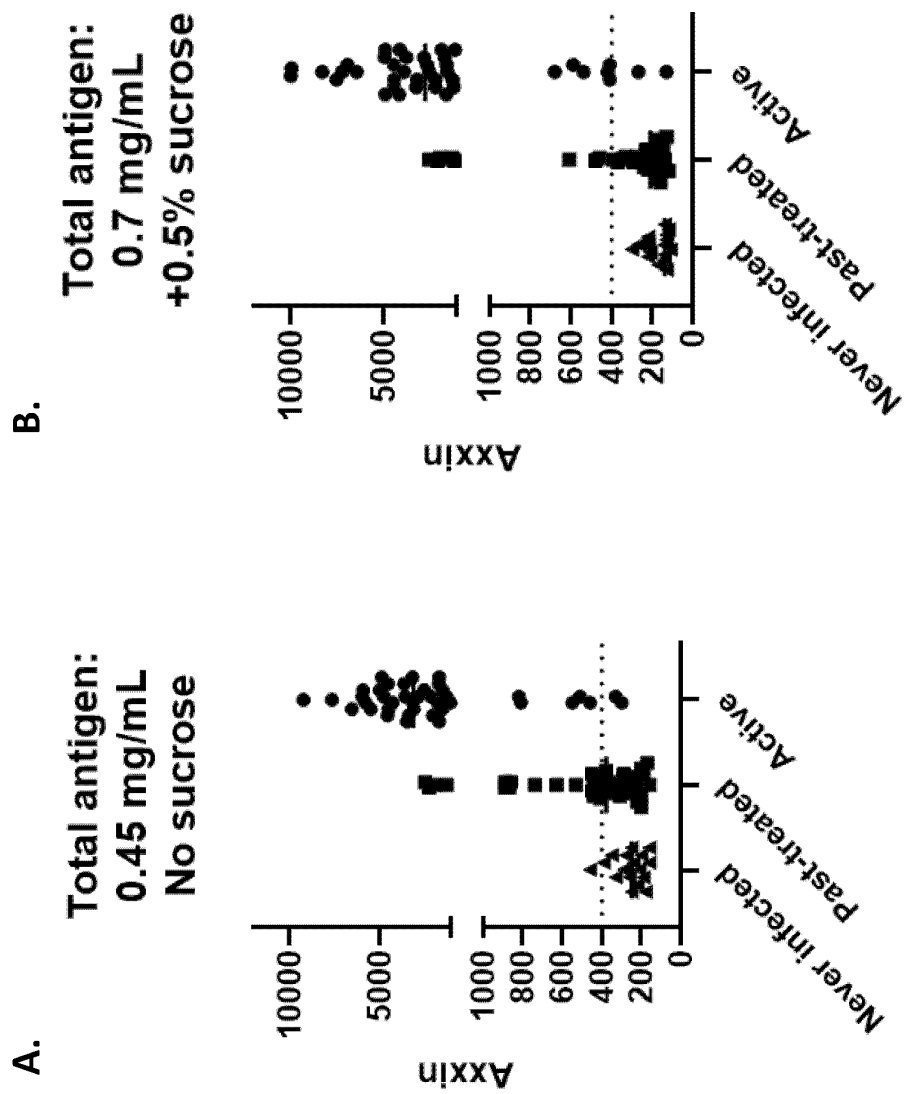
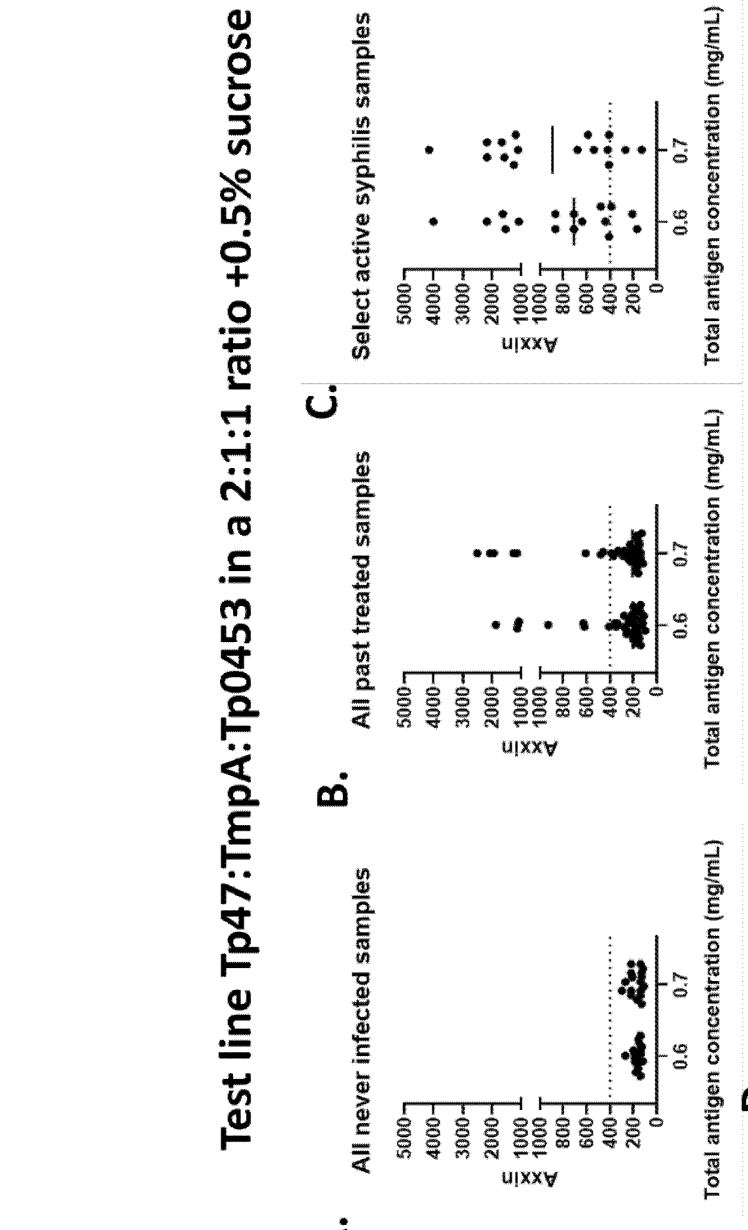

A.
Total antigen:
0.45 mg/mL
No sucrose
B.
Total antigen:
0.7 mg/mL
+0.5% sucrose
Axxin
10000
5000
1000
800
600
400
200
0
Never infected
Past-treated
Active

FIGURE 15

	Triple antigens (tested 40 positive, 40 past-treated, 17 negative)			
Tp0453	0.11 mg/mL		0.175 mg/mL	
TmpA	0.11 mg/mL		0.175 mg/mL	
Tp47	0.23 mg/mL		0.35 mg/mL	
Sucrose	0		0.50%	
Sensitivity	95%	38/40	95%	38/40
PT Specificity	58%	23/40	80%	32/40
Neg Specificity	94%	16/17	100%	17/17
Overall specificity	68%	39/57	86%	49/57

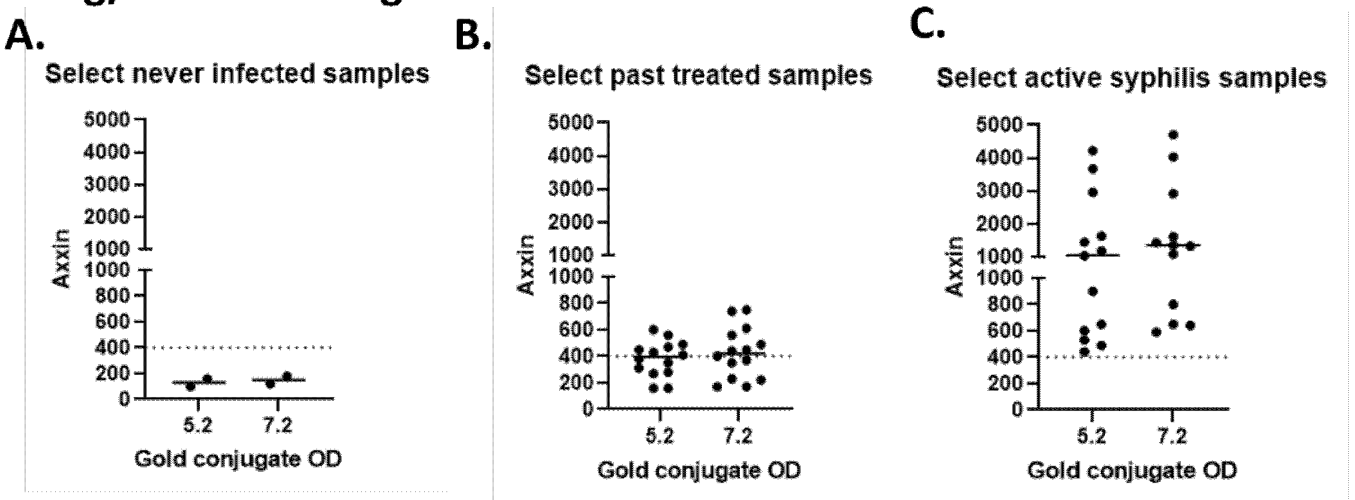
FIGURE 16



		Total antigen (mg/mL)	
		0.6	0.7
Mean axxin value	Never infected	167	177
	Past treated	355	428
	Active syphilis	1021	1171

FIGURE 17

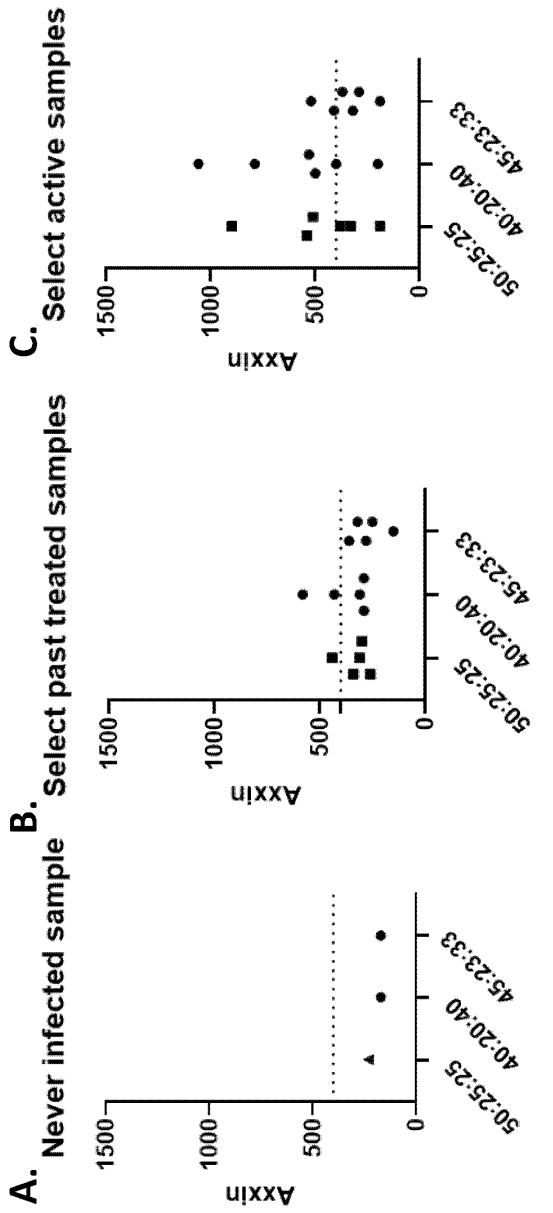
Test line Tp47:TmpA:Tp0453 in a 2:1:1 ratio +0.5% sucrose, 0.7 mg/mL total antigen



D.

		Gold OD	
		5.2	7.2
Mean axxin value	Never infect	130	150
	Past treated	380	425
	Active syphilis	1518	2081

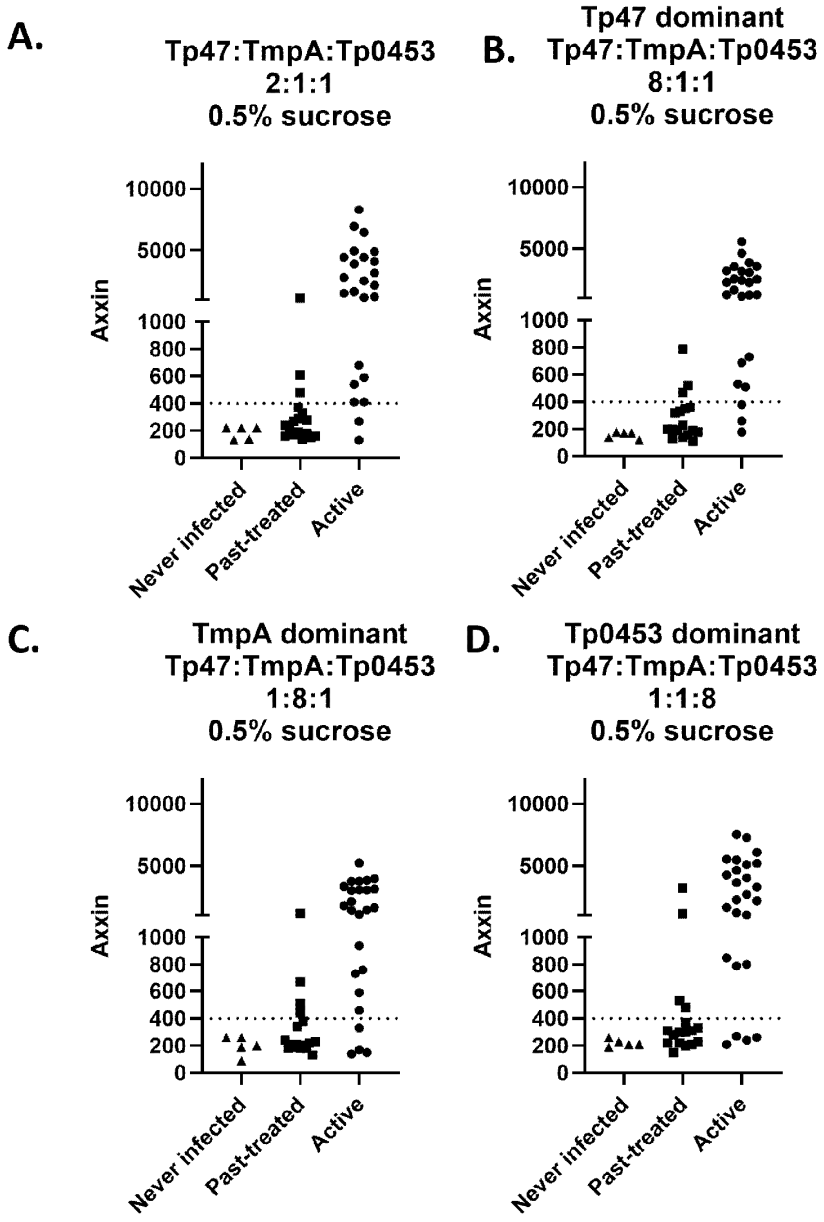
FIGURE 18



D.

Ratio (Tp47:Tp0453:TmpA)	Patients >400 (%)		
	Never infected	Past treated	Active
50:25:25	0	20	50
40:20:40	0	40	83
45:23:33	0	0	33

FIGURE 19

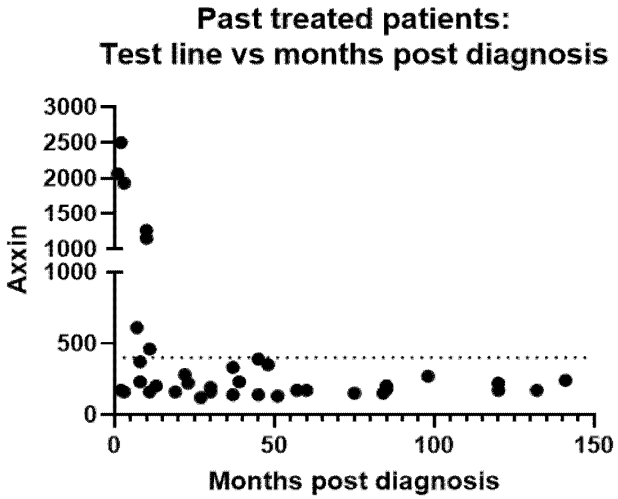


E.

	Sensitivity		Specificity	
Tp47:TmpA:Tp0453 (2:1:1)	92%	23/25	86%	19/22
Tp47:TmpA:Tp0453 (8:1:1)	88%	22/25	86%	19/22
Tp47:TmpA:Tp0453 (1:8:1)	84%	21/25	82%	18/22
Tp47:TmpA:Tp0453 (1:1:8)	84%	21/25	82%	18/22

FIGURE 20

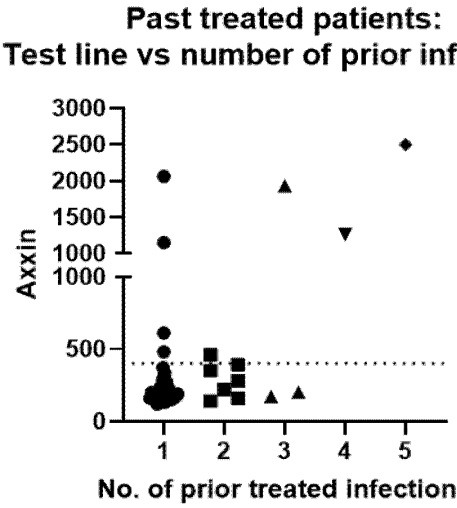
A.



B.

	Months post diagnosis		
	0-6 months	6-12 months	>12 months
False positives	60% (3/5)	57% (4/7)	0% (0/26)

C.



D.

	No. of prior infections									
	1		2		3		4		5	
False positives	14%	(4/28)	14%	(1/7)	33%	(1/3)	100%	(1/1)	100%	(1/1)

FIGURE 21

		With all the samples	Exclude <6 months post infection	Exclude >1 past infection	Exclude >2 past infection	Exclude <6 months post infection and >2 past infection
Sensitivity	Burnet Test	95% (38/40)	95% (38/40)	94% (34/36)	95% (37/39)	95% (37/39)
	Abbott Bioline 3.0	97% (38/39)	97% (38/39)	97% (35/36)	97% (37/38)	97% (37/38)
	Abbott Determine TP	100% (38/38)	100% (38/38)	100% (35/35)	100% (37/37)	100% (37/37)
Specificity	Burnet Test	86% (49/57)	90% (47/52)	91% (41/45)	90% (47/52)	92% (45/49)
	Abbott Bioline 3.0	37% (21/57)	38% (20/52)	44% (20/45)	40% (21/52)	41% (20/49)
	Abbott Determine TP	28% (16/57)	31% (16/52)	36% (16/45)	31% (16/52)	33% (16/49)

FIGURE 22

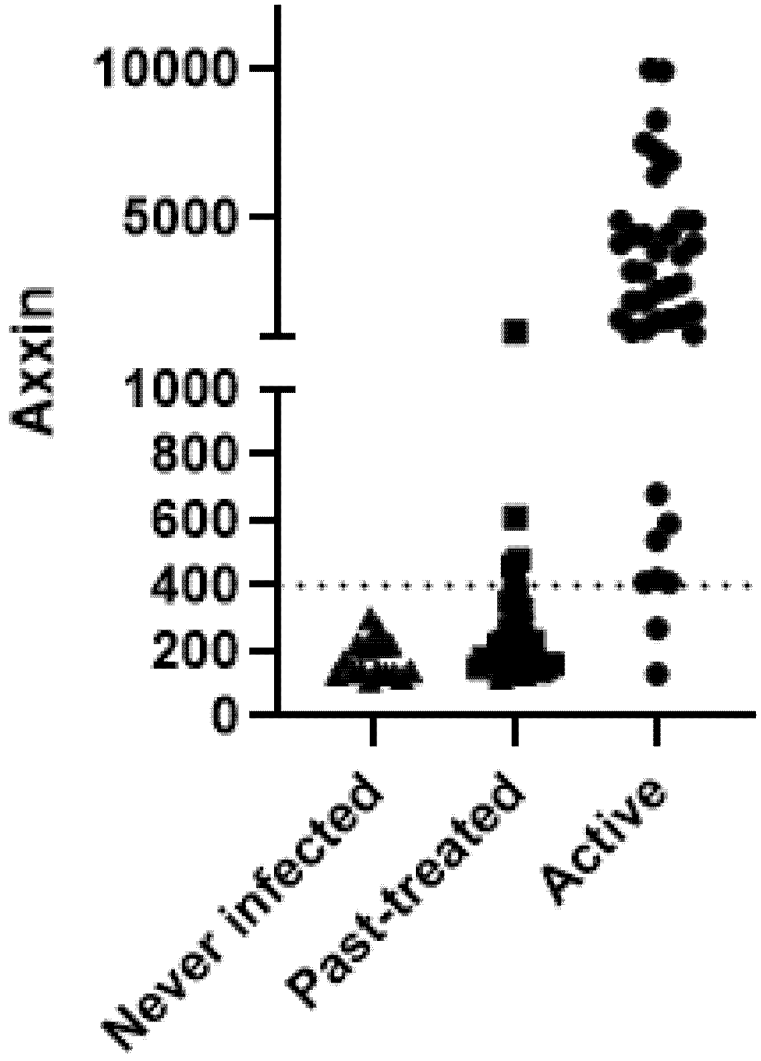

10000
5000
1000
800
600
400
200
0
Axxin
Never infected
Past-treated
Active

FIGURE 23

A

	Burnet Test	Bioline™ Syphilis 3.0	Abbott Determine™
Sensitivity	95% (37/39)	97% (37/38)	100% (37/37)
Overall Specificity	92% (45/49)	41% (20/49)	33% (16/49)
Past-treated	88% (28/32)	9% (3/32)	0% (0/32)
Never infected	100% (17/17)	100% (17/17)	94% (16/17)

FIGURE 24

B Includes all samples

BDI Test (tested 40 positive, 40 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 38	False Positive (FP) 8	**PPV (TP/TP+FP)** **83%** 38/46
Test Negative (Peak≤400)	False Negative (FN) 2	True Negative (TN) 49	**NPV (TN/FN+TN)** **96%** 49/51
	Sensitivity (TP/TP+FN) **95%** 38/40	**Specificity (TN/FP+TN)** **86%** 49/57	

Commercial test: Abbott Bioline Syphilis 3.0 (tested 39 positive, 40 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Visual Positive	True Positive (TP) 38	False Positive (FP) 36	**PPV (TP/TP+FP)** **51%** 38/74
Visual Negative	False Negative (FN) 1	True Negative (TN) 21	**NPV (TN/FN+TN)** **95%** 21/22
	Sensitivity (TP/TP+FN) **97%** 38/39	**Specificity (TN/FP+TN)** **37%** 21/57	

Commercial test: Abbott Determine TP (tested 38 positive, 40 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Visual Positive	True Positive (TP) 38	False Positive (FP) 41	**PPV (TP/TP+FP)** **48%** 38/79
Visual Negative	False Negative (FN) 0	True Negative (TN) 16	**NPV (TN/FN+TN)** **100%** 16/16
	Sensitivity (TP/TP+FN) **100%** 38/38	**Specificity (TN/FP+TN)** **28%** 16/57	

FIGURE 24 CONTINUED

C Excludes samples with blood taken <6 months post infection and with >2 past infections

BDI Test (tested 39 positive, 32 past-treated, 17 negative)			
	Active Syphilis	Inactive Syphilis (PT+Neg)	
Test Positive (Peak>400)	True Positive (TP) 37	False Positive (FP) 4	PPV (TP/TP+FP) 90% 37/41
Test Negative (Peak≤400)	False Negative (FN) 2	True Negative (TN) 45	NPV (TN/FN+TN) 96% 45/47
	Sensitivity (TP/TP+FN) 95% 37/39	Specificity (TN/FP+TN) 92% 45/49	

Commercial test: Abbott Determine TP (tested 37 positive, 32 past-treated, 17 negative)			
	Active Syphilis	Inactive Syphilis (PT+Neg)	
Visual Positive	True Positive (TP) 37	False Positive (FP) 33	PPV (TP/TP+FP) 53% 37/70
Visual Negative	False Negative (FN) 0	True Negative (TN) 16	NPV (TN/FN+TN) 100% 16/16
	Sensitivity (TP/TP+FN) 100% 37/37	Specificity (TN/FP+TN) 33% 16/49	

Commercial test: Abbott Bioline Syphilis 3.0 (tested 38 positive, 32 past-treated, 17 negative)			
	Active Syphilis	Inactive Syphilis (PT+Neg)	
Visual Positive	True Positive (TP) 37	False Positive (FP) 29	PPV (TP/TP+FP) 56% 37/66
Visual Negative	False Negative (FN) 1	True Negative (TN) 20	NPV (TN/FN+TN) 95% 20/21
	Sensitivity (TP/TP+FN) 97% 37/38	Specificity (TN/FP+TN) 41% 20/49	

FIGURE 24 CONTINUED

Reclassify based on THPA/RPR

Include samples with blood taken < 6 months post infection or >2 past infections

With 0.5% sucrose – Triple antigens: Tp47+TmpA+Tp0453 (ratio 2:1:1, 0.7mg/mL total) (Based on TPHA/RPR: 37 positive, 43 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 36	False Positive (FP) 10	**PPV (TP/TP+FP)** **78%** [illegible]
Test Negative (Peak≤400)	False Negative (FN) 1	True Negative (TN) 50	**NPV (TN/FN+TN)** **98%** [illegible]
	Sensitivity (TP/TP+FN) **97%** [illegible]	**Specificity (TN/FP+TN)** **83%** [illegible]	

Exclude samples with blood taken < 6 months post infection or > 2 past infections

With 0.5% sucrose – Triple antigens: Tp47+TmpA+Tp0453 (ratio 2:1:1, 0.7mg/mL total) (Based on TPHA/RPR: 34 positive, 38 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 33	False Positive (FP) 9	**PPV (TP/TP+FP)** **79%** [illegible]
Test Negative (Peak≤400)	False Negative (FN) 1	True Negative (TN) 46	**NPV (TN/FN+TN)** **98%** [illegible]
	Sensitivity (TP/TP+FN) **97%** [illegible]	**Specificity (TN/FP+TN)** **84%** [illegible]	

FIGURE 25

Exclude samples with blood taken < 6 months post infection
or > 2 past infections

Tp0453+Meridian (0.15mg/mL each) (tested 39 positive, 32 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 25	False Positive (FP) 5	**PPV (TP/TP+FP)** **83%** 25/30
Test Negative (Peak≤400)	False Negative (FN) 14	True Negative (TN) 44	**NPV (TN/FN+TN)** **76%** 44/58
	Sensitivity (TP/TP+FN) **64%** 25/39		**Specificity (TN/FP+TN)** **90%** 44/49

With 0.5% sucrose – Triple antigens: Tp47+TmpA+Tp0453 (ratio 2:1:1, 0.7mg/mL total) (tested 39 positive, 32 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 37	False Positive (FP) 4	**PPV (TP/TP+FP)** **90%** 37/41
Test Negative (Peak≤400)	False Negative (FN) 2	True Negative (TN) 45	**NPV (TN/FN+TN)** **96%** 45/47
	Sensitivity (TP/TP+FN) **95%** 37/39		**Specificity (TN/FP+TN)** **92%** 45/49

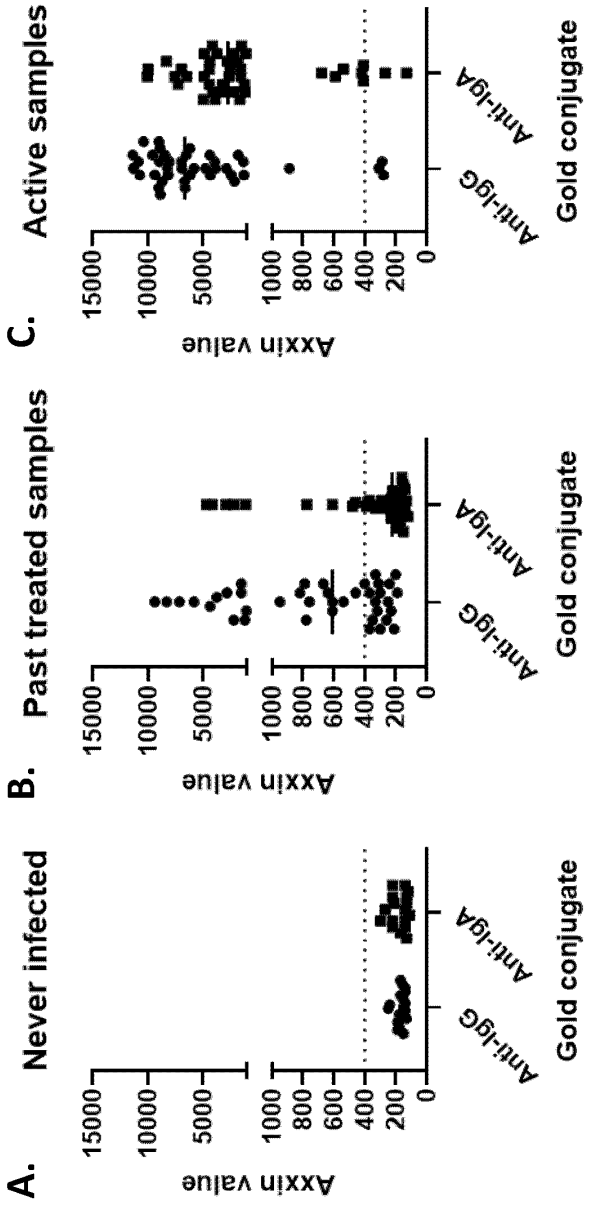
FIGURE 26

Includee samples with blood taken < 6 months post infection or > 2 past infections

Tp0453+Meridian (0.15mg/mL each) (tested 40 positive, 40 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 26	False Positive (FP) 9	**PPV (TP/TP+FP)** **74%** 26/35
Test Negative (Peak≤400)	False Negative (FN) 14	True Negative (TN) 48	**NPV (TN/FN+TN)** **77%** 48/62
	Sensitivity (TP/TP+FN) **65%** 26/40	**Specificity (TN/FP+TN)** **84%** 48/57	

With 0.5% sucrose – Triple antigens: Tp47+TmpA+Tp0453 (ratio 2:1:1, 0.7mg/mL total) (tested 40 positive, 40 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive (Peak>400)	True Positive (TP) 38	False Positive (FP) 8	**PPV (TP/TP+FP)** **83%** 38/46
Test Negative (Peak≤400)	False Negative (FN) 2	True Negative (TN) 49	**NPV (TN/FN+TN)** **96%** 49/51
	Sensitivity (TP/TP+FN) **95%** 38/40	**Specificity (TN/FP+TN)** **86%** 49/57	

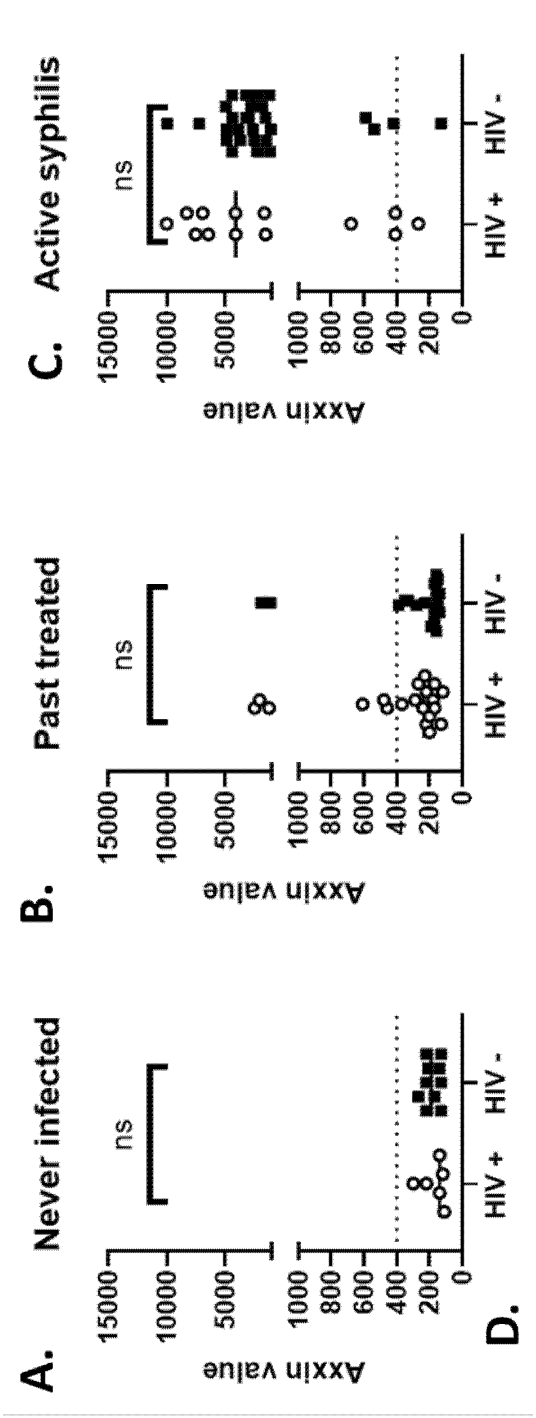
FIGURE 26 CONTINUED



D.

	Anti IgA	Anti IgG
Sensitivity	95% (38/40)	93% (37/40)
Specificity (Overall)	92% (45/49)	63% (31/49)
Specificity (Past treated)	88% (28/32)	44% (14/32)
Specificity (Never infected)	100% (17/17)	100% (17/17)

FIGURE 27



	Never infected			Past treated			Active syphilis		
HIV status	+	-		+	-		+	-	
Patients >400 on syphilis test line	0%	0/6	0%	0/10	30%	6/20	10%	2/20	92%	12/13	97%	26/27
Mean of syphilis test line	171	184		519	337		4039	3024	

FIGURE 28

Tp15 WT

MVKRGRFALCLAVLLGACSFSSIPNGTYRATYQDFDENGWKDFLEVTFDGGKMVQVVYDYQHKEGRFK
SQDADYHRVMYASSGIGPEKAFRELADALLEKGNPEMVDVVTGATVSSQSFRRLGRALLQSARRGEKEA
IISR*

Tp17 WT

MKGSVRALCAFLGVGALGSALCVSCTTVCPHAGK**AKAEKVECALK**GGIFR**GTLPAADCPGIDTTV**
TFNADGTAQKVELALEKKSAPSPLTYRGTWMVREDGIVELSLVSSEQSKAPHEKELYELI
DSNSVRYMGAPGAGKPSKEMAPFYVLKKTKK*

Tp47 WT

MKVKYALLSAGALQLLVVGCGSSHHETHYGYATLSYADYWAGELGQSRDVLLAGNAEADRAGDLDAG
MFDAVSRATHGHGAFRQQFQYAVEVLGEKVLSKQETEDSRGRKKWEYETDPSVTKMVRASASFQDLG
EDGEIKFEAVEGAVALADRASSFMVDSEEYKITNVKVHGMKFVPVAVPHELKGIAKEKFHFVEDSRVTEN
TNGLKTMLTEDSFSARKVSSMESPHDLVVDTVGTGYHSRFGS**DAEASVMLK**RADGSELSHREFIDYV
MNFNTVRYDYYGDDASYTNLMASYGTKHSADSWWKTGRVPRISCGINYGFDRFKGSGPGYYRLTLIAN
GYDVVADVRFLPKYEGNIDIGLKGKVLTIGGADAETLMDAAVDVFADGQPKLVSDQAVSLGQNVLSADF
TPGTEYTVEVRFKEFGSVRAKVVAQ*

FIGURE 29

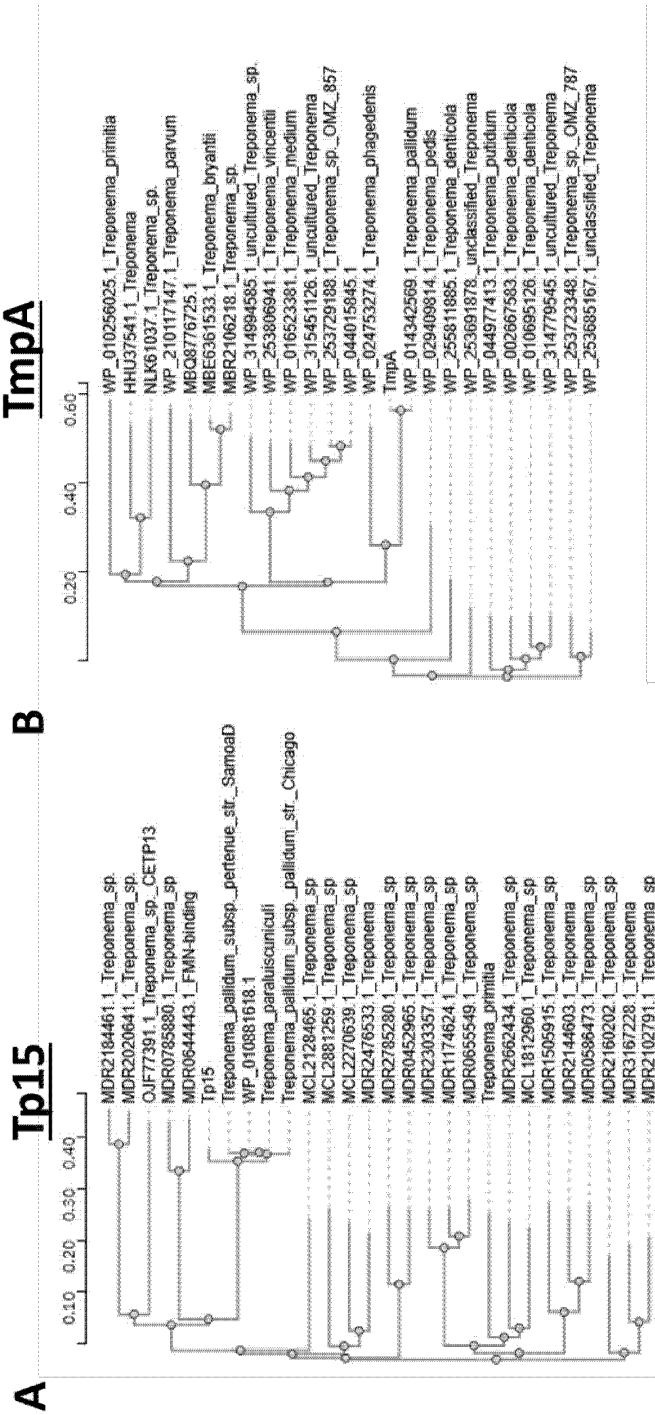

A
Tp15
0.10
0.20
0.30
0.40
MDR2184461.1_Treponema_sp.
MDR2020641.1_Treponema_sp.
OJF77391.1_Treponema_sp._CETP13
MDR0785880.1_Treponema_sp
MDR0644443.1_FMN-binding
Tp15
Treponema_pallidum_subsp._pertenue_str._SamoaD
WP_010881618.1
Treponema_paraluiscuniculi
Treponema_pallidum_subsp._pallidum_str._Chicago
MCL2128465.1_Treponema_sp
MCL2881259.1_Treponema_sp
MCL2270639.1_Treponema_sp
MDR2476533.1_Treponema
MDR2785280.1_Treponema_sp
MDR0452965.1_Treponema_sp
MDR2303357.1_Treponema_sp
MDR1174624.1_Treponema_sp
MDR0655549.1_Treponema_sp
Treponema_primitia
MDR2662434.1_Treponema_sp
MCL1812960.1_Treponema_sp
MDR1505915.1_Treponema_sp
MDR2144603.1_Treponema
MDR0586473.1_Treponema_sp
MDR2160202.1_Treponema_sp
MDR3167228.1_Treponema
MDR2102791.1_Treponema_sp
B
TmpA
0.20
0.40
0.60
WP_010256025.1_Treponema_primitia
HHU37541.1_Treponema
NLK61037.1_Treponema_sp.
WP_210117147.1_Treponema_parvum
MBQ8776725.1
MBE6361533.1_Treponema_bryantii
MBR2106218.1_Treponema_sp.
WP_314994585.1_uncultured_Treponema_sp.
WP_253806941.1_Treponema_vincentii
WP_016523381.1_Treponema_medium
WP_315451126.1_uncultured_Treponema
WP_253729188.1_Treponema_sp._OMZ_857
WP_044015845.1
WP_024753274.1_Treponema_phagedenis
TmpA
WP_014342569.1_Treponema_pallidum
WP_029409814.1_Treponema_pedis
WP_255811885.1_Treponema_denticola
WP_253691878._unclassified_Treponema
WP_044977413.1_Treponema_putidum
WP_002667583.1_Treponema_denticola
WP_010695126.1_Treponema_denticola
WP_314779545.1_uncultured_Treponema
WP_253723348.1_Treponema_sp._OMZ_787
WP_253685167.1_unclassified_Treponema

FIGURE 30

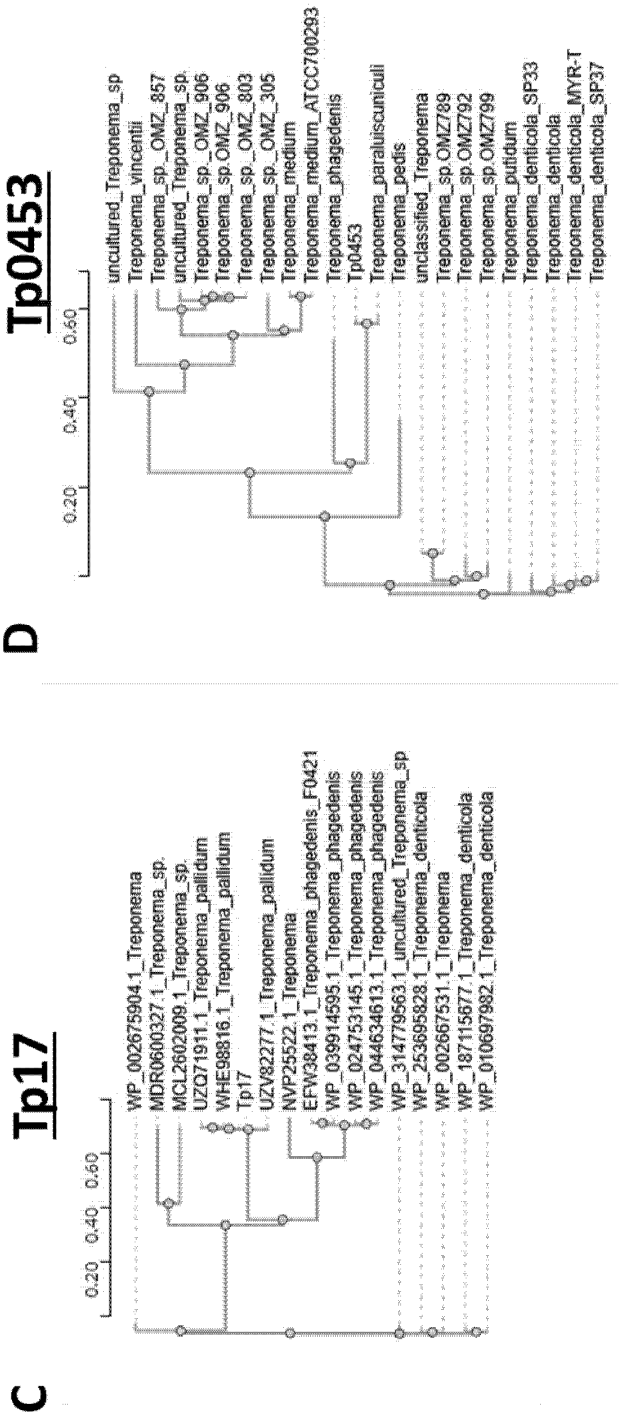


FIGURE 30 CONTINUED

E

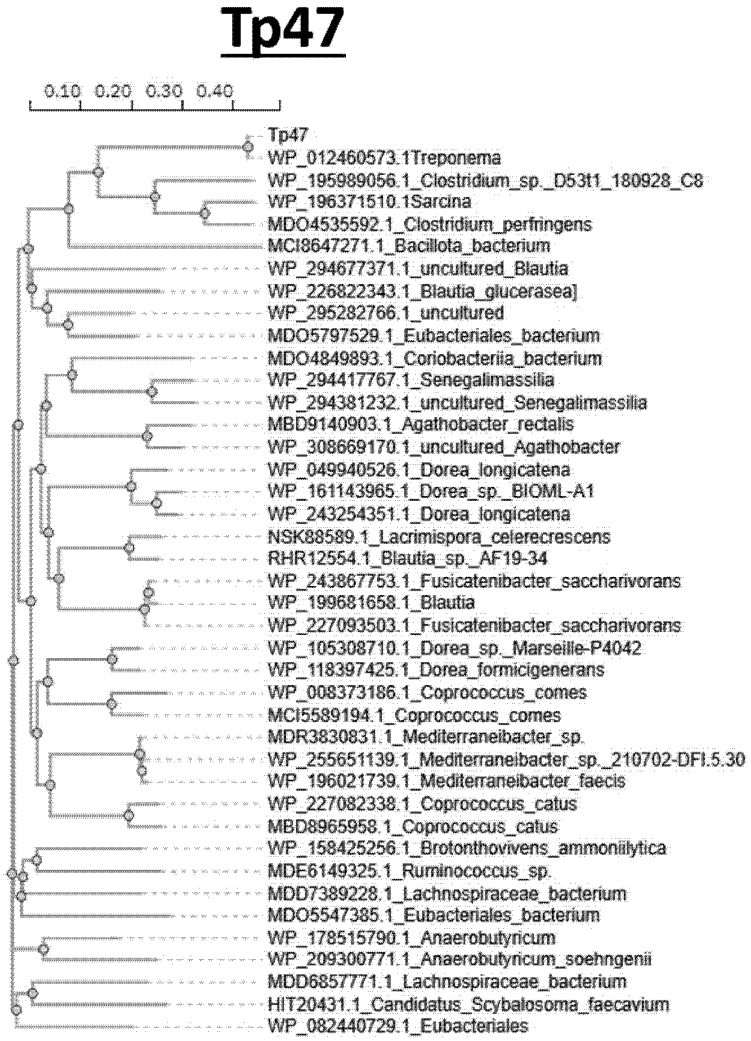


FIGURE 30 CONTINUED


Rehydration pad
Anti-IgA conjugate pad
Sample pad
Blood retention pad
8951:9 mm
8951: 6 mm
8980: 11 mm
FR-1: 7mm
NCM-HF90: 25 mm
Absorbent pad CF6: 22 mm
Test
Line
Backing card: 73.5 mm
2 mm overlaps

FIGURE 31

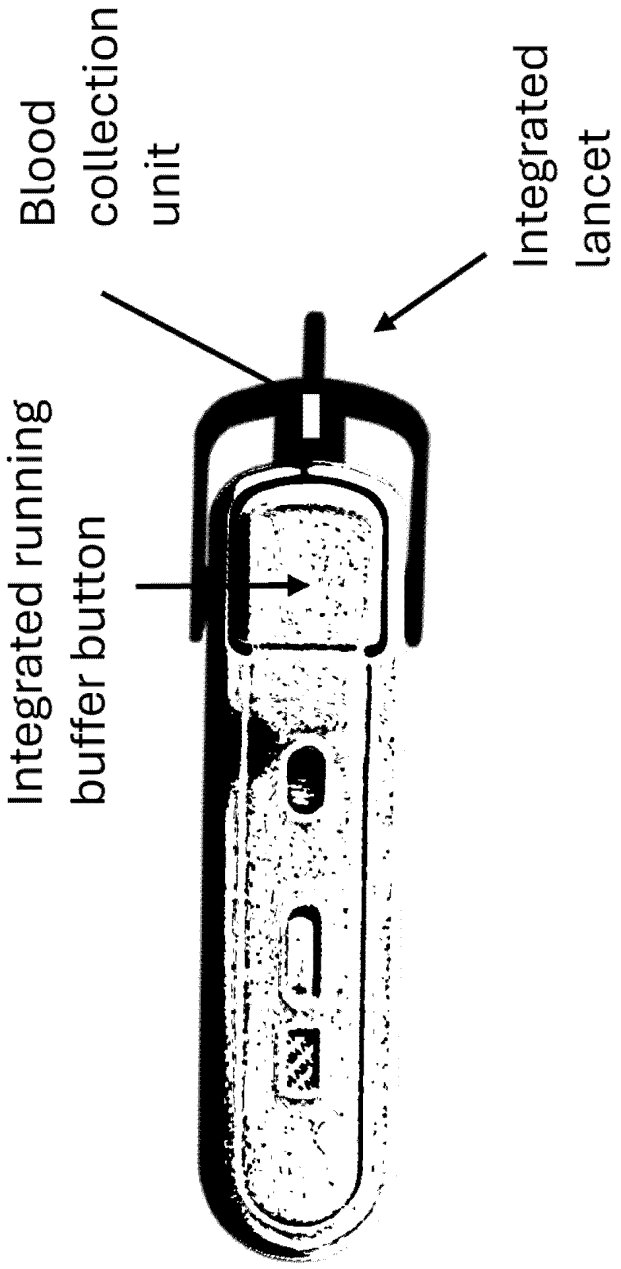

Blood collection unit
Integrated lancet
Integrated running buffer button

FIGURE 32

A Include samples with blood taken < 6 months post infection or > 2 past infections

With 0.5% sucrose – Triple antigens: Tp47+TmpA+Tp0453 (ratio 2:1:1, 1.4mg/mL total) (tested 40 positive, 41 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive	True Positive (TP) 38	False Positive (FP) 8	**PPV (TP/TP+FP)** **83%** [illegible]
Test Negative	False Negative (FN) 2	True Negative (TN) 50	**NPV (TN/FN+TN)** **96%** [illegible]
	Sensitivity (TP/TP+FN) **95%** [illegible]	**Specificity (TN/FP+TN)** **86%** [illegible]	

B Exclude samples with blood taken < 6 months post infection or > 2 past infections

With 0.5% sucrose – Triple antigens: Tp47+TmpA+Tp0453 (ratio 2:1:1, 1.4mg/mL total) (tested 39 positive, 33 past-treated, 17 negative)			
	Active Syphilis	**Inactive Syphilis (PT+Neg)**	
Test Positive	True Positive (TP) 37	False Positive (FP) 4	**PPV (TP/TP+FP)** **90%** [illegible]
Test Negative	False Negative (FN) 2	True Negative (TN) 46	**NPV (TN/FN+TN)** **96%** [illegible]
	Sensitivity (TP/TP+FN) **95%** [illegible]	**Specificity (TN/FP+TN)** **92%** [illegible]	

FIGURE 33

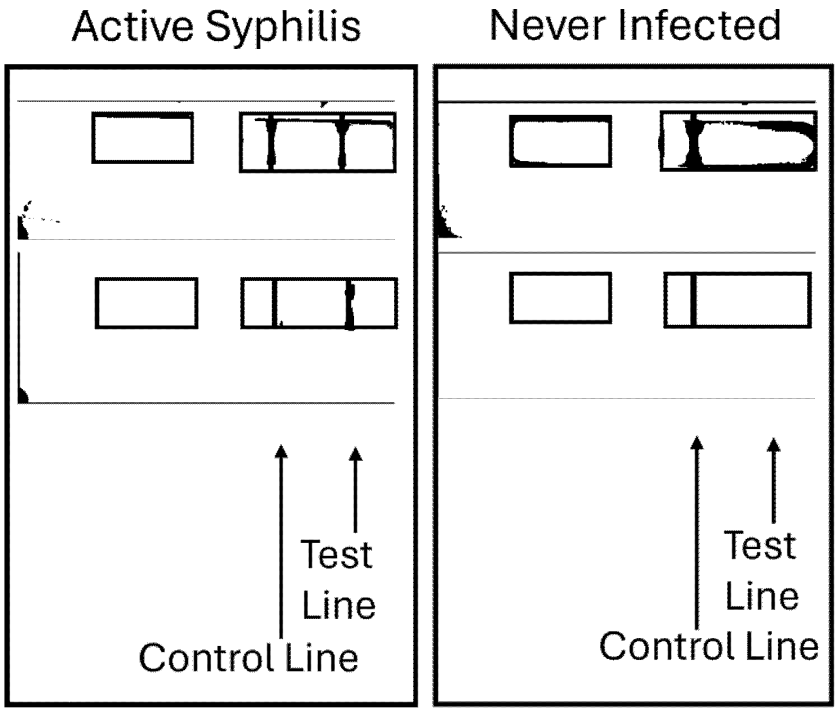

Active Syphilis
Never Infected
Test Line
Control Line
Test Line
Control Line

FIGURE 34

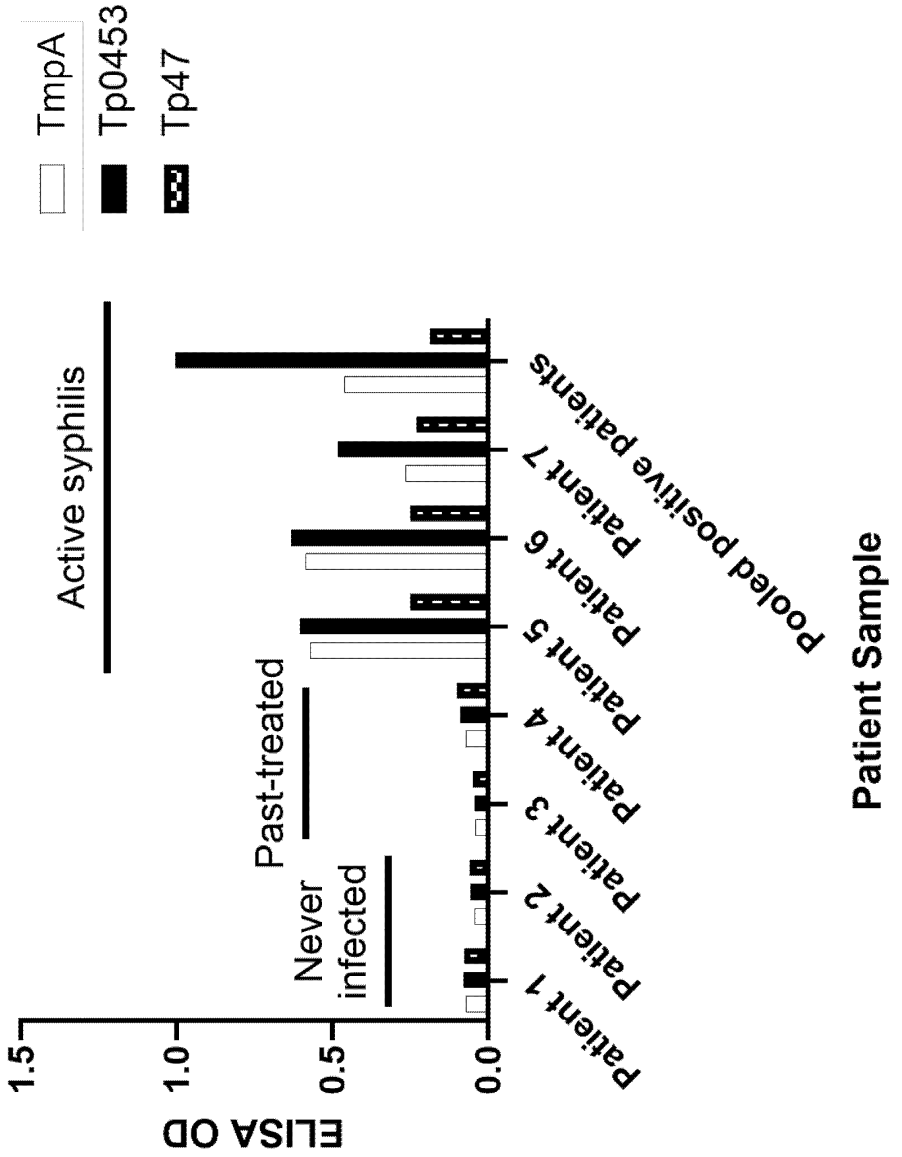

TmpA
Tp0453
Tp47
Active syphilis
Past-treated
Never infected
ELISA OD
1.5
1.0
0.5
0.0
Patient 1
Patient 2
Patient 3
Patient 4
Patient 5
Patient 6
Patient 7
Pooled positive patients
Patient Sample

FIGURE 35

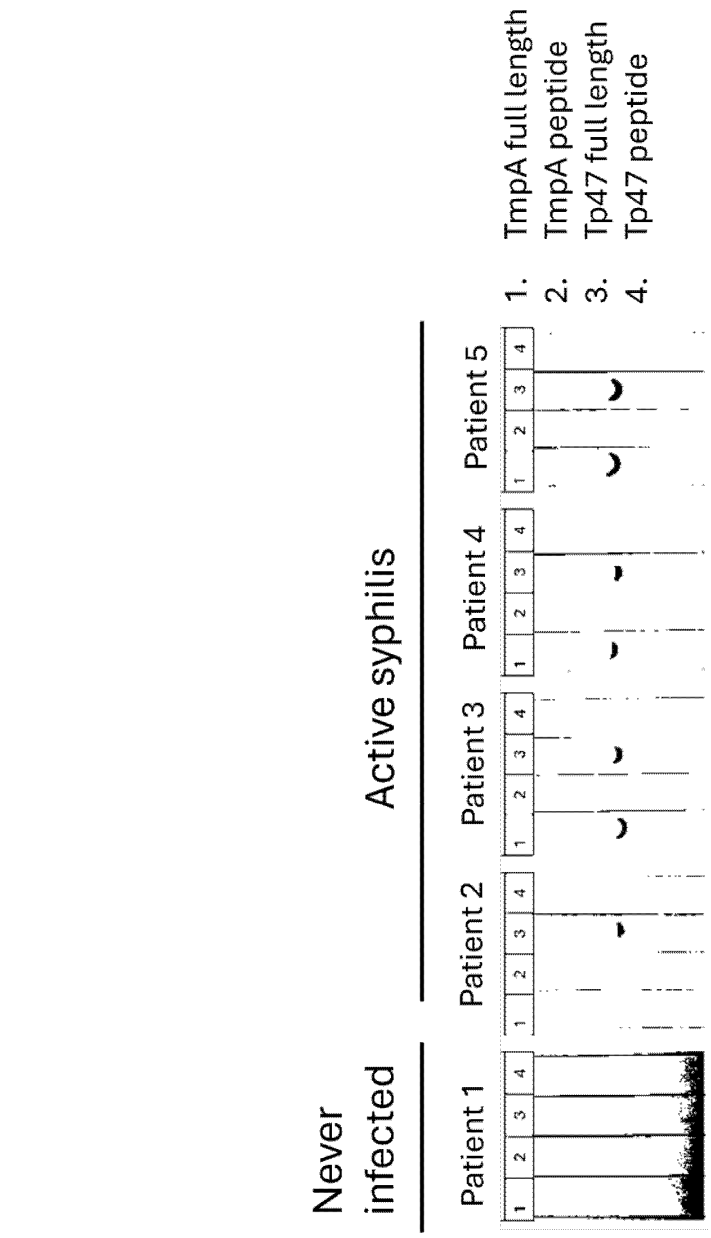

Never infected
Active syphilis
Patient 1
Patient 2
Patient 3
Patient 4
Patient 5
1 2 3 4
1. TmpA full length
2. TmpA peptide
3. Tp47 full length
4. Tp47 peptide

FIGURE 36

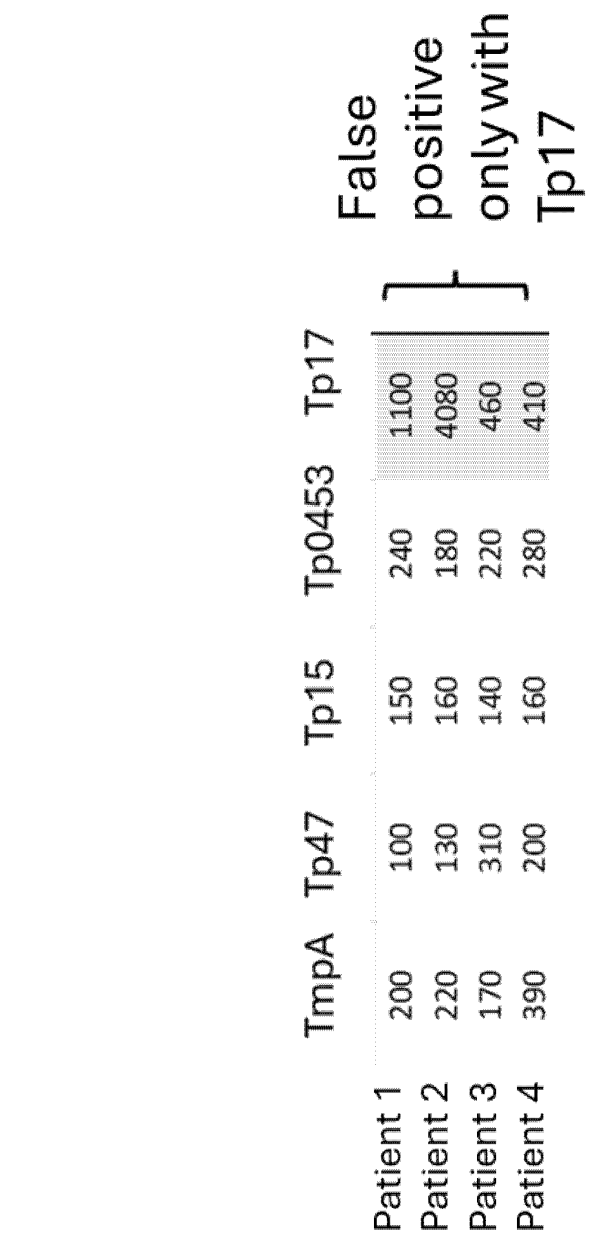

TmpA
Tp47
Tp15
Tp0453
Tp17
Patient 1
200
100
150
240
1100
Patient 2
220
130
160
180
4080
Patient 3
170
310
140
220
460
Patient 4
390
200
160
280
410
False positive only with Tp17

FIGURE 37

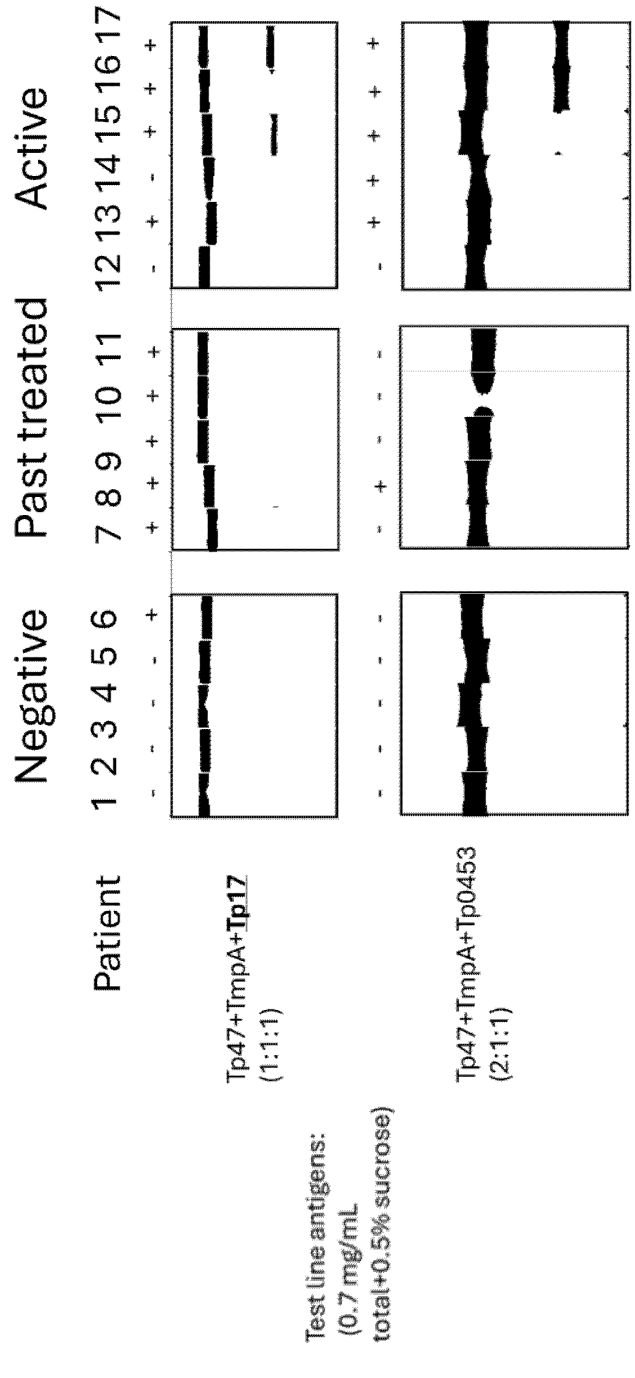

Negative
Past treated
Active
Patient
1 2 3 4 5 6
7 8 9 10 11
12 13 14 15 16 17
Test line antigens:
(0.7 mg/mL
total+0.5% sucrose)
Tp47+TmpA+Tp17
(1:1:1)
Tp47+TmpA+Tp0453
(2:1:1)

FIGURE 38

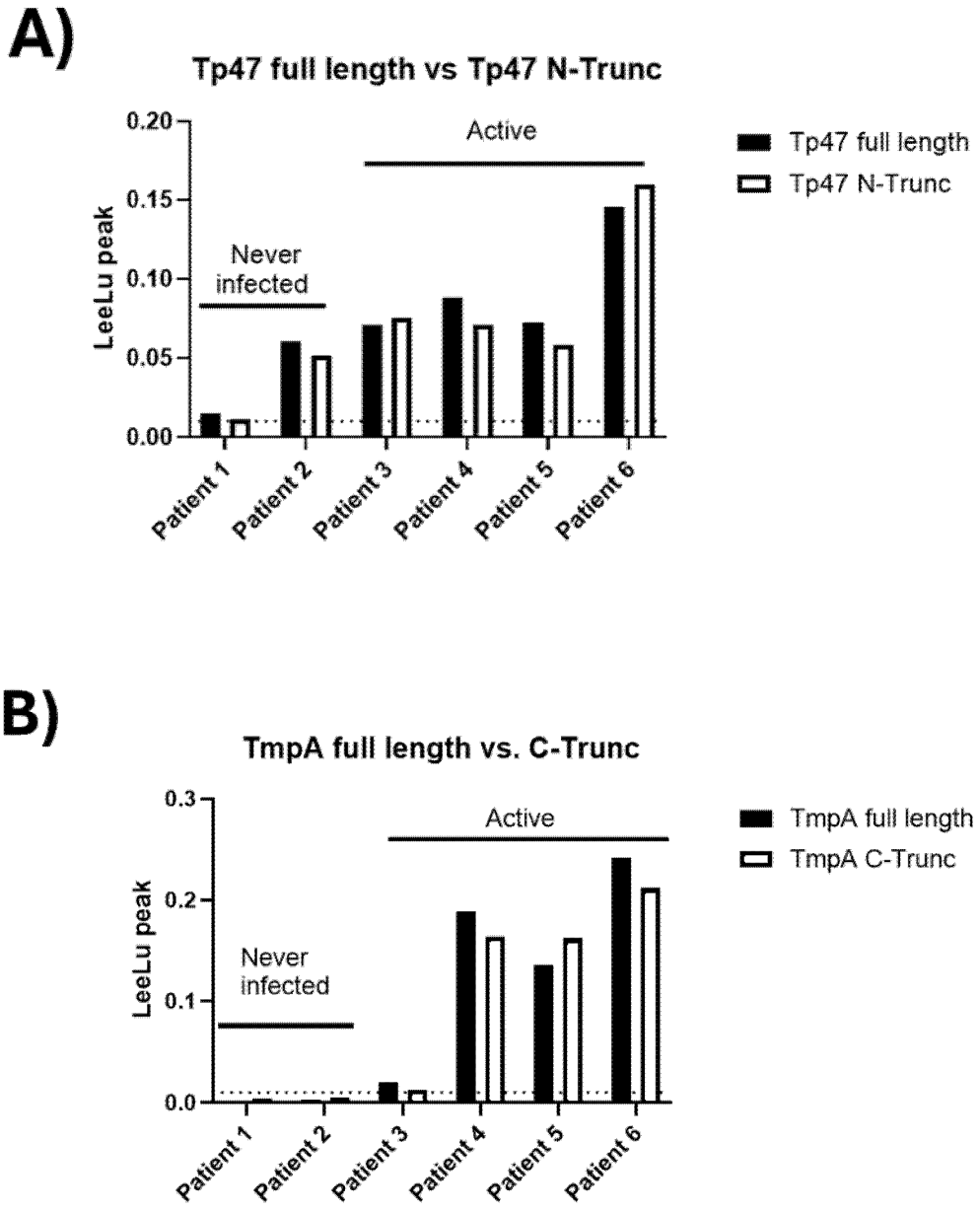

A)
Tp47 full length vs Tp47 N-Trunc
LeeLu peak
0.20
0.15
0.10
0.05
0.00
Never infected
Active
Patient 1
Patient 2
Patient 3
Patient 4
Patient 5
Patient 6
Tp47 full length
Tp47 N-Trunc
B)
TmpA full length vs. C-Trunc
LeeLu peak
0.3
0.2
0.1
0.0
Never infected
Active
Patient 1
Patient 2
Patient 3
Patient 4
Patient 5
Patient 6
TmpA full length
TmpA C-Trunc

FIGURE 39