Supplement table and figure

Table S1. Complete blood count of rhesus macaques

Comparison CBC results at differential day after feeding for control group

Tests	Units	Day after feeding for control group						
		-21 day	-14 day	0 day	7 day	14 day	21 day	28 day
RBC	10^6/ul	4.79	4.76	4.83	5.01	4.93	5.12	5.02
Hct	%	38	38	39	40	39	41	40
Hb	gm%	12.0	12.2	12.2	12.7	12.3	12.7	12.5
WBC	cells/ul	3,700	4,500	4,200	7,500	4,100	4,700	3,300
Plt	cells/ul	154,000	235,000	233,000	173,000	265,000	206,000	251,000
MCV	fl	79.7	79.4	79.7	79.0	79.9	79.9	80.1
MCH	pg	25.1	25.6	25.3	25.3	24.9	24.8	24.9
MCHC	g/dl	31.4	32.3	31.7	32.1	31.2	31.1	31.1
Neu-s	%	35	63	58	51	57	49	41
N-b	%	0	2	2	2	2	3	3
Lymp	%	56	28	35	38	37	42	46
Bas	%	1	0	1	1	0	1	1
Eos	%	1	0	1	1	0	1	1
Mon	%	4	3	2	3	1	1	2

Comparison CBC results at differential day after feeding for NHP-1

Tests	Units	Day after feeding for NHP-1						
		-21 day	-14 day	0 day	7 day	14 day	21 day	28 day
RBC	10^6/ul	6.38	5.99	6.26	6.16	6.12	6.06	6.18
Hct	%	44	41	43	42	42	41	42
Hb	gm%	14.5	14.0	14.7	14.2	14.1	13.8	14.2
WBC	cells/ul	5,400	6,800	7,900	6,700	6,600	8,800	7,900
Plt	cells/ul	303,000	266,000	359,000	341,000	339,000	340,000	376,000
MCV	fl	69.1	68.6	68.1	68.8	68.3	68.2	68.1
MCH	pg	22.7	23.4	23.5	23.1	23.0▼	22.8▼	23.0▼
MCHC	g/dl	32.9	34.1	34.5	33.5	33.7▼	33.4▼	33.7
Neu-s	%	42	57	65	46	53	49▼	50▼
N-b	%	1	2	2	1	2	0	1
Lymp	%	49	37	31	47	38	46▲	45▲
Bas	%	1	0	1	0	3	1	1
Eos	%	1	0	1	0	3	1	1
Mon	%	6	3	1	3	1▼	2	2

Comparison CBC results at differential day after feeding for NHP-3

Tests	Units	Day after feeding for NHP-3						
		-21 day	-14 day	0 day	7 day	14 day	21 day	28 day
RBC	10^6/ul	5.35	5.33	5.43	5.58	5.44	5.09	5.43
Hct	%	40	40	41	42	41	39	41
Hb	gm%	13.0	13.4	13.2	13.4	13.0	12.3	13.0
WBC	cells/ul	4,900	7,000	4,300	5,300	6,600	8,100	7,300
Plt	cells/ul	263,000	269,000	333,000	427,000	279,000	391,000	320,000
MCV	fl	75.0	75.2	75.3	76.0	76.1	76.2	74.3
MCH	pg	24.3	25.1	24.3	24.0	23.9▼	24.2▼	24.4▼
MCHC	g/dl	32.4	33.4	32.3	31.6	31.4▼	31.7▼	32.8
Neu-s	%	38	46	48	48	61	33▼	34▼
N-b	%	4	1	2	2	5	2	0
Lymp	%	53	46	41	46	28	58▲	60▲
Bas	%	0	0	0	0	0	0	0
Eos	%	0	0	0	0	0	0	0
Mon	%	2	3	1	4	0▼	3	3

'▲' means that the- values showed significantly increased after chigger challenge. '▼' means that the values showed significantly decreased after chigger challenge.

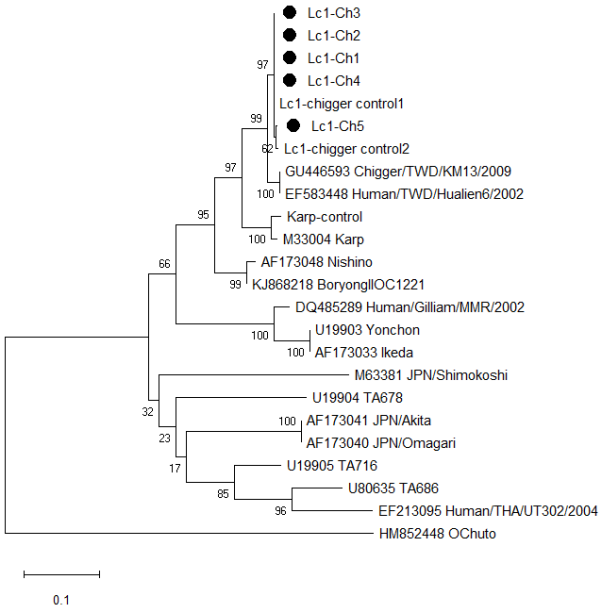
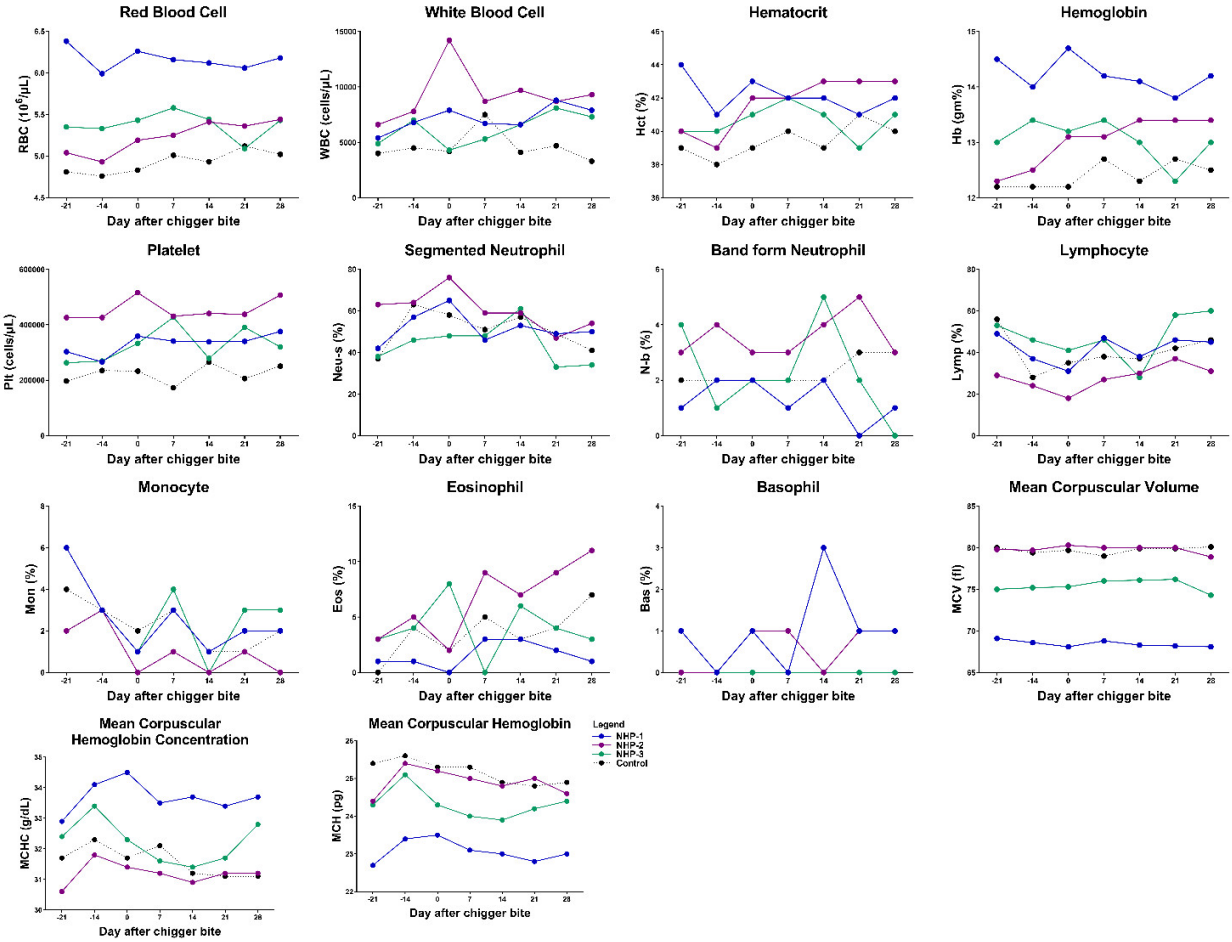


Figure S1. Phylogenetic analysis of *O. tsutsugamushi* in *Leptotrombidium chaingraiensis* chiggers from the colonies. The evolutionary tree was inferred by using Maximum likelihood method and General Time Reversible model. A discrete Gamma distribution was used to model evolutionary rate differences among sites. The tree is drawn to scale, with branch lengths measured in the number of substitutions per site. Numbers at nodes indicate bootstrap value at 1000 replications.


Red Blood Cell
RBC (10^6/μL)
Day after chigger bite
White Blood Cell
WBC (cells/μL)
Day after chigger bite
Hematocrit
Hct (%)
Day after chigger bite
Hemoglobin
Hb (gm%)
Day after chigger bite
Platelet
Plt (cells/μL)
Day after chigger bite
Segmented Neutrophil
Neu-s (%)
Day after chigger bite
Band form Neutrophil
N-b (%)
Day after chigger bite
Lymphocyte
Lymp (%)
Day after chigger bite
Monocyte
Mon (%)
Day after chigger bite
Eosinophil
Eos (%)
Day after chigger bite
Basophil
Bas (%)
Day after chigger bite
Mean Corpuscular Volume
MCV (fl)
Day after chigger bite
Mean Corpuscular Hemoglobin Concentration
MCHC (g/dL)
Day after chigger bite
Mean Corpuscular Hemoglobin
MCH (pg)
Day after chigger bite
Legend
NHP-1
NHP-2
NHP-3
Control

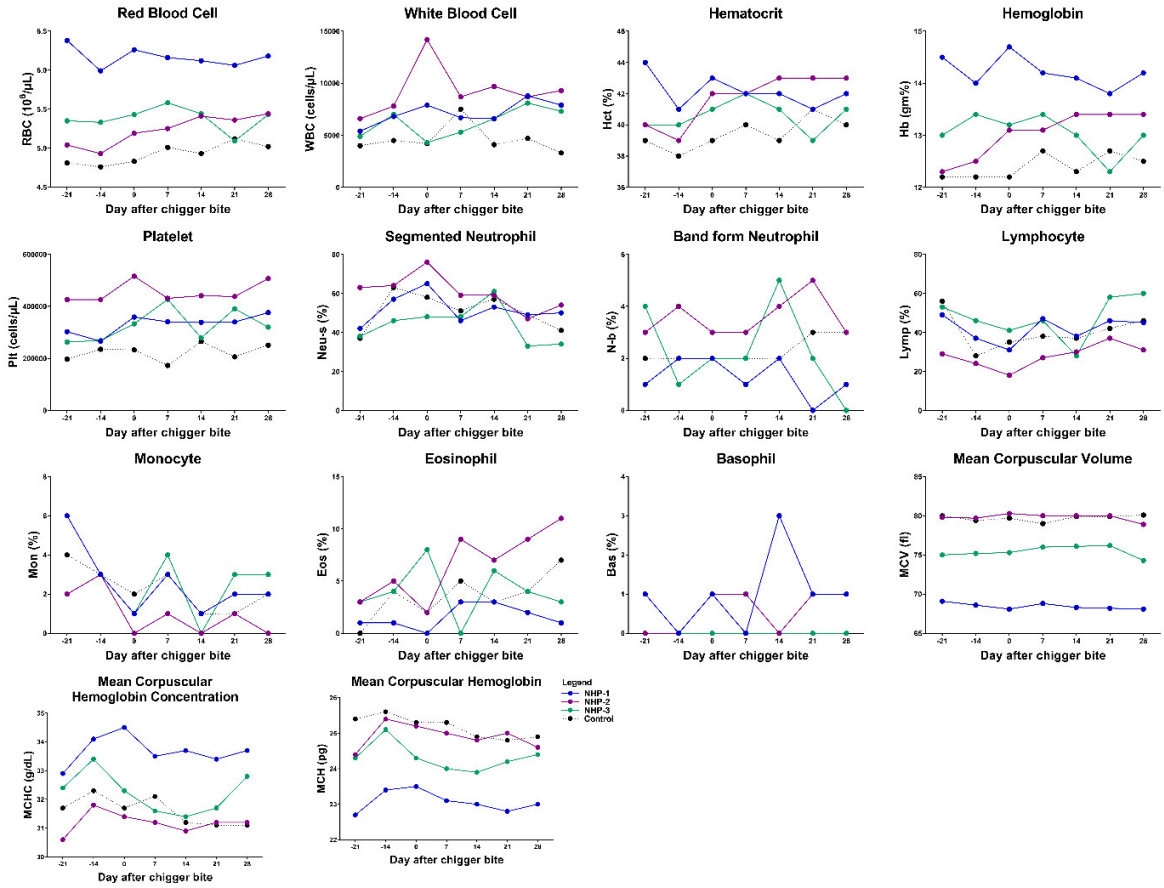


Figure S2. Hematological analysis of rhesus macaques after *O. tsutsugamushi* infection or non-infected chigger bite (control).

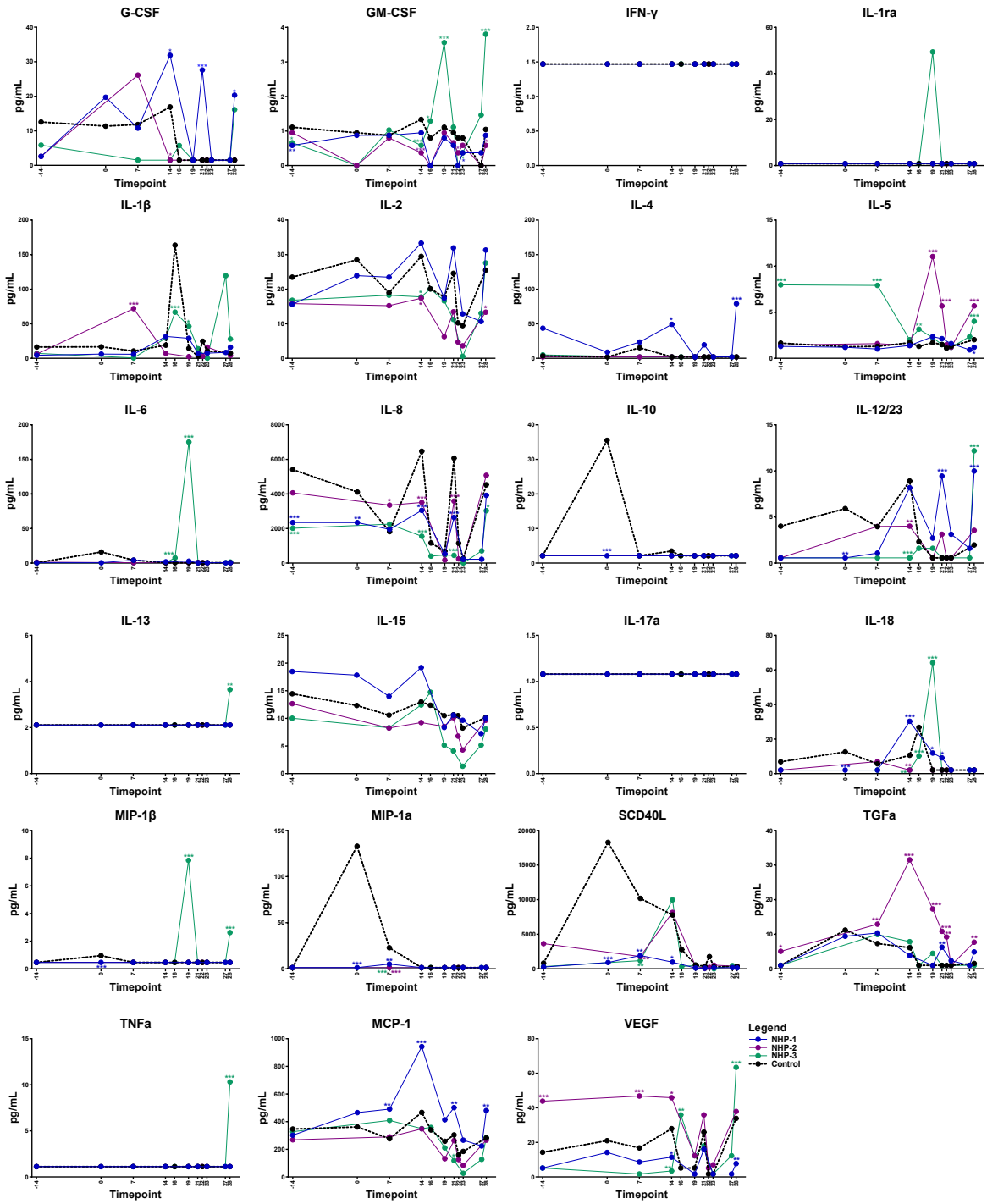
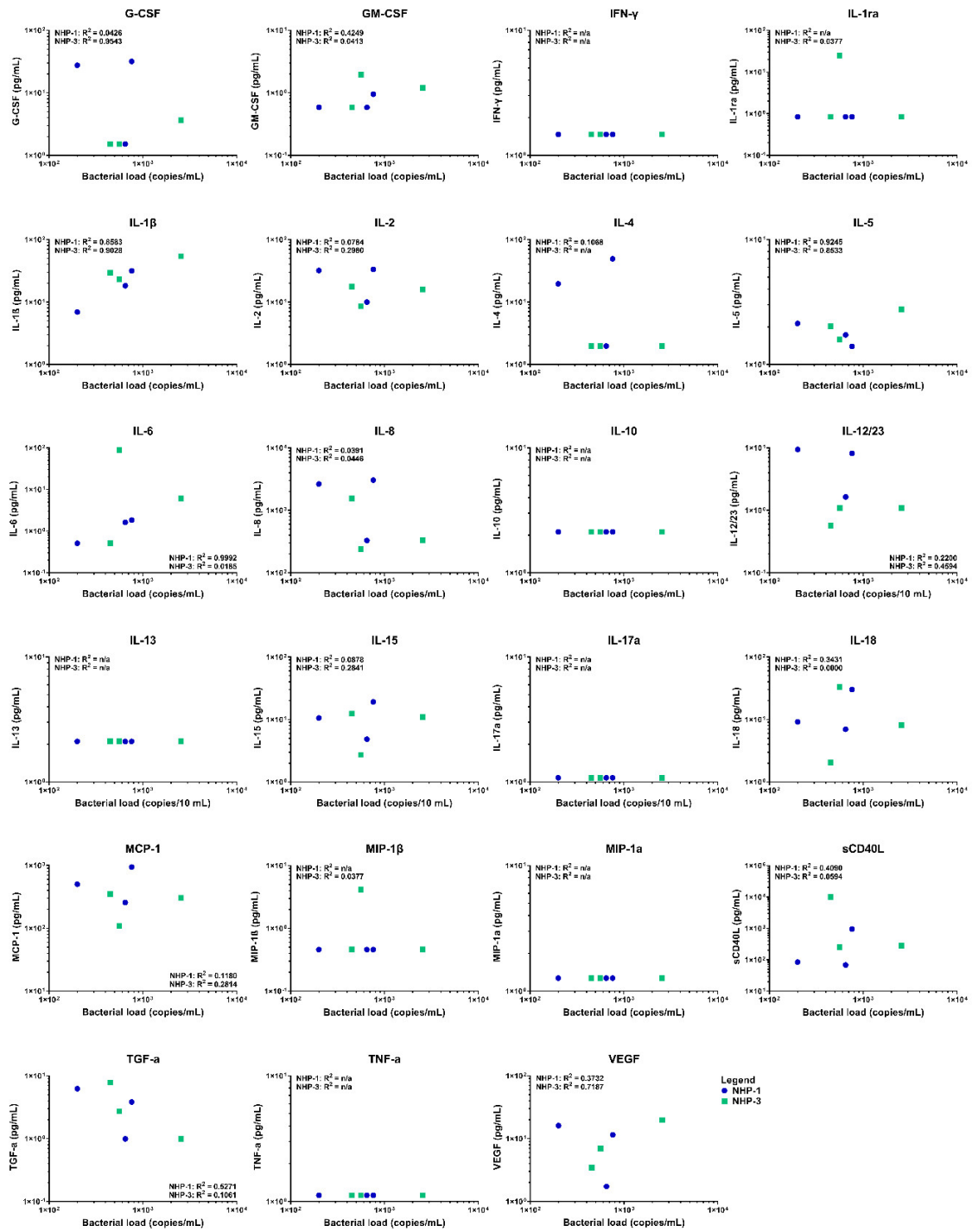


Figure S3. Serum levels of 23 cytokine/ chemokine in rhesus macaques during *O. tsutsugamushi* infection via chigger bite.


G-CSF
NHP-1: R² = 0.0426
NHP-3: R² = 0.9543
G-CSF (pg/mL)
GM-CSF
NHP-1: R² = 0.4249
NHP-3: R² = 0.0413
GM-CSF (pg/mL)
IFN-γ
NHP-1: R² = n/a
NHP-3: R² = n/a
IFN-γ (pg/mL)
IL-1ra
NHP-1: R² = n/a
NHP-3: R² = 0.0377
IL-1ra (pg/mL)
IL-1β
NHP-1: R² = 0.8583
NHP-3: R² = 0.9028
IL-1β (pg/mL)
IL-2
NHP-1: R² = 0.0784
NHP-3: R² = 0.2980
IL-2 (pg/mL)
IL-4
NHP-1: R² = 0.1068
NHP-3: R² = n/a
IL-4 (pg/mL)
IL-5
NHP-1: R² = 0.9245
NHP-3: R² = 0.8533
IL-5 (pg/mL)
IL-6
NHP-1: R² = 0.9992
NHP-3: R² = 0.0185
IL-6 (pg/mL)
IL-8
NHP-1: R² = 0.0391
NHP-3: R² = 0.0446
IL-8 (pg/mL)
IL-10
NHP-1: R² = n/a
NHP-3: R² = n/a
IL-10 (pg/mL)
IL-12/23
NHP-1: R² = 0.2200
NHP-3: R² = 0.4594
IL-12/23 (pg/mL)
IL-13
NHP-1: R² = n/a
NHP-3: R² = n/a
IL-13 (pg/mL)
IL-15
NHP-1: R² = 0.0876
NHP-3: R² = 0.2841
IL-15 (pg/mL)
IL-17a
NHP-1: R² = n/a
NHP-3: R² = n/a
IL-17a (pg/mL)
IL-18
NHP-1: R² = 0.3431
NHP-3: R² = 0.0800
IL-18 (pg/mL)
MCP-1
NHP-1: R² = 0.1180
NHP-3: R² = 0.2814
MCP-1 (pg/mL)
MIP-1β
NHP-1: R² = n/a
NHP-3: R² = 0.0377
MIP-1β (pg/mL)
MIP-1a
NHP-1: R² = n/a
NHP-3: R² = n/a
MIP-1a (pg/mL)
sCD40L
NHP-1: R² = 0.4090
NHP-3: R² = 0.0584
sCD40L (pg/mL)
TGF-a
NHP-1: R² = 0.5271
NHP-3: R² = 0.1061
TGF-a (pg/mL)
TNF-a
NHP-1: R² = n/a
NHP-3: R² = n/a
TNF-a (pg/mL)
VEGF
NHP-1: R² = 0.3732
NHP-3: R² = 0.7187
VEGF (pg/mL)
Legend
NHP-1
NHP-3
Bacterial load (copies/mL)
Bacterial load (copies/10 mL)

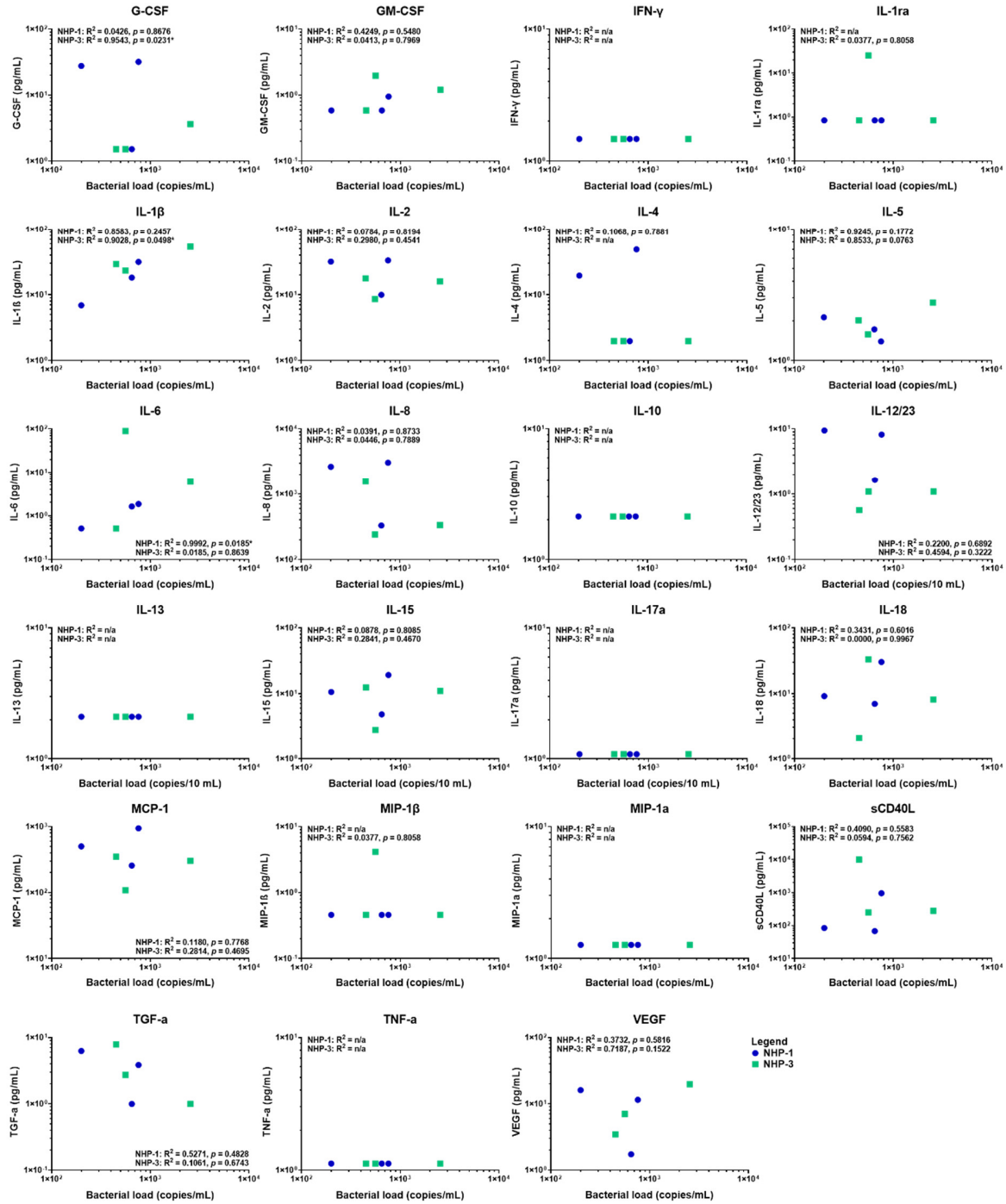


Figure S4. Immunological correlation analysis of serum cytokine/ chemokine of all macaques and bacteremia during acute phase of infection. Correlation efficiency and P value were calculated based on the duplication of each individual samples.