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SUPPLEMENTARY INFORMATION

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Mosquito C-type lectins maintain gut microbiome homeostasis

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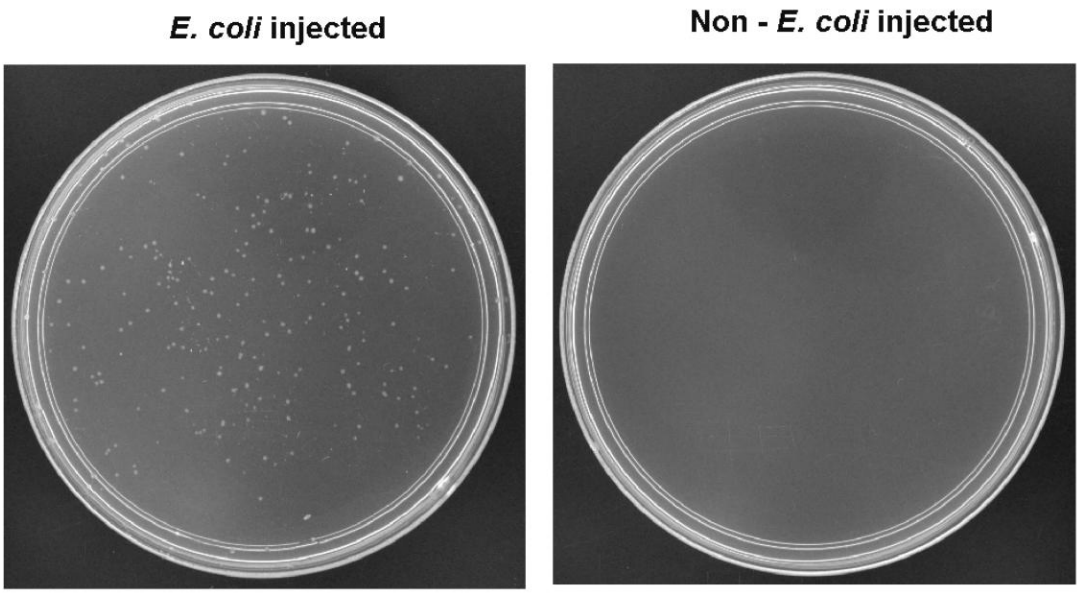
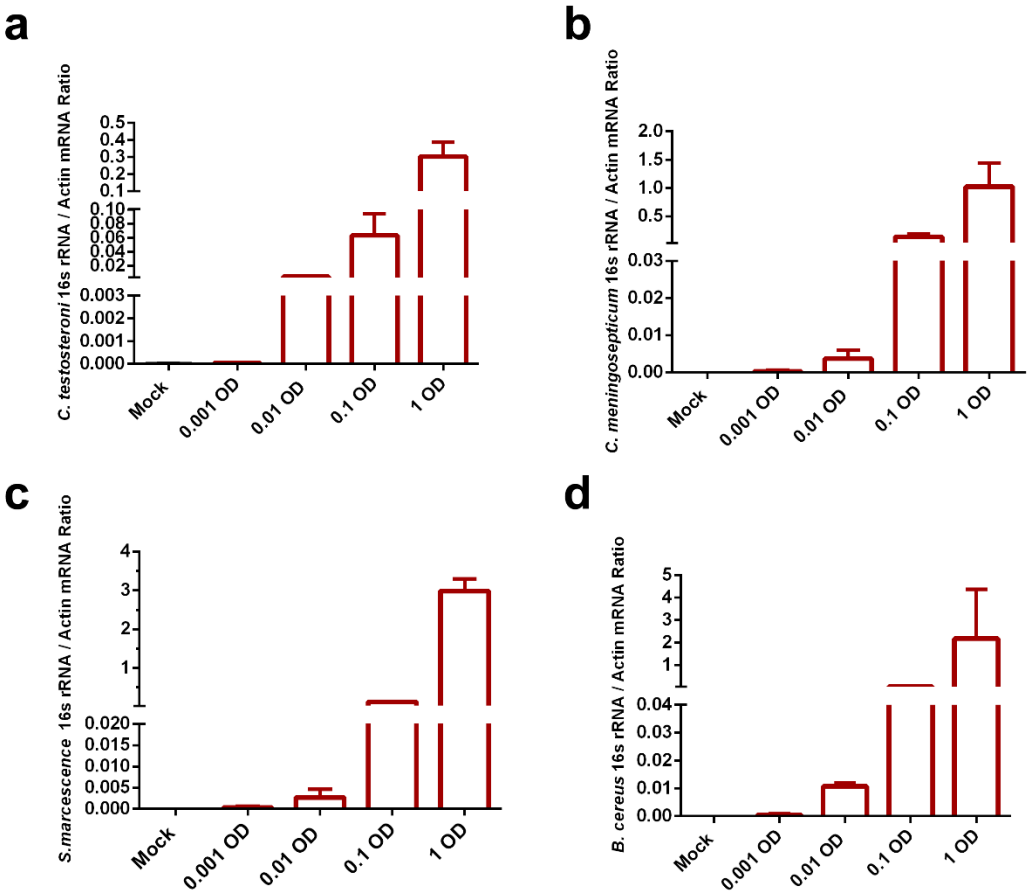
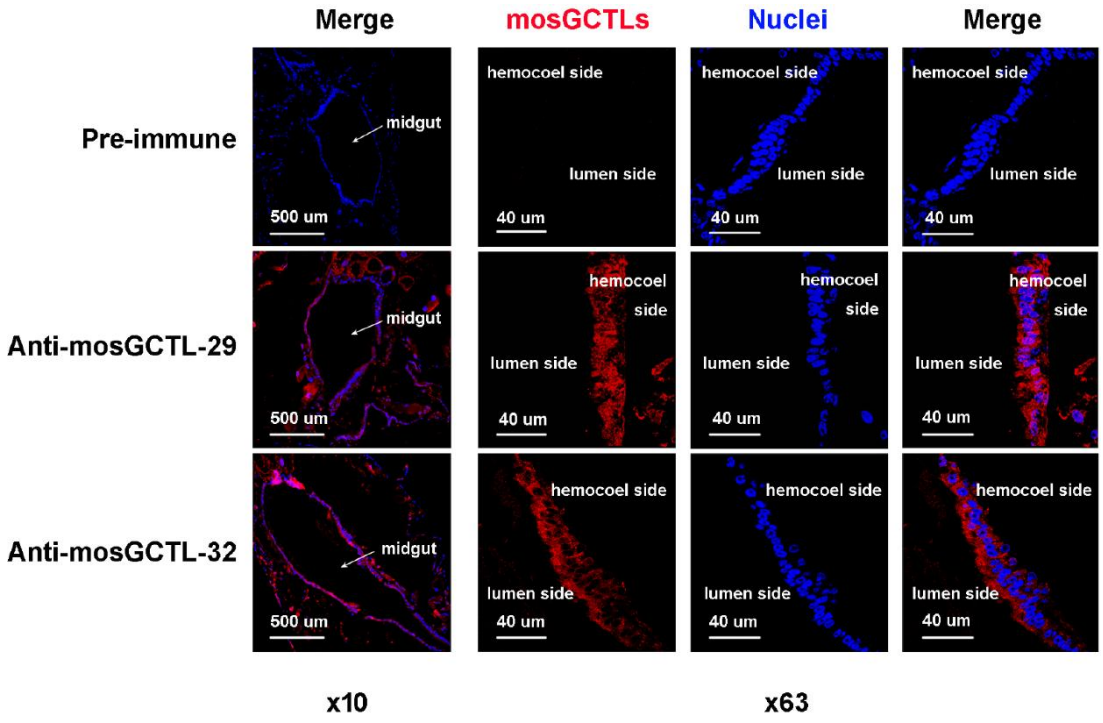


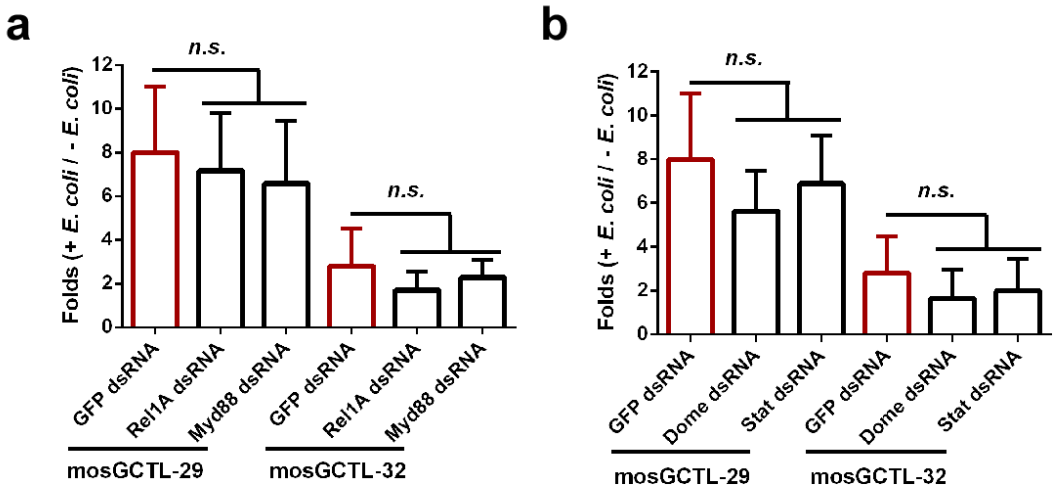
Supplementary Figure 1. Detection of the spectinomycin-resistant commensal microbiome in *A. aegypti* . Untreated mosquitoes were ground in PBS buffer. Then, bacterial viability was assessed by the CFU assay on LB plates with 100 μg/ml spectinomycin. Mosquitoes inoculated with *E. coli* (ST515 strain) cells were used as the positive controls.



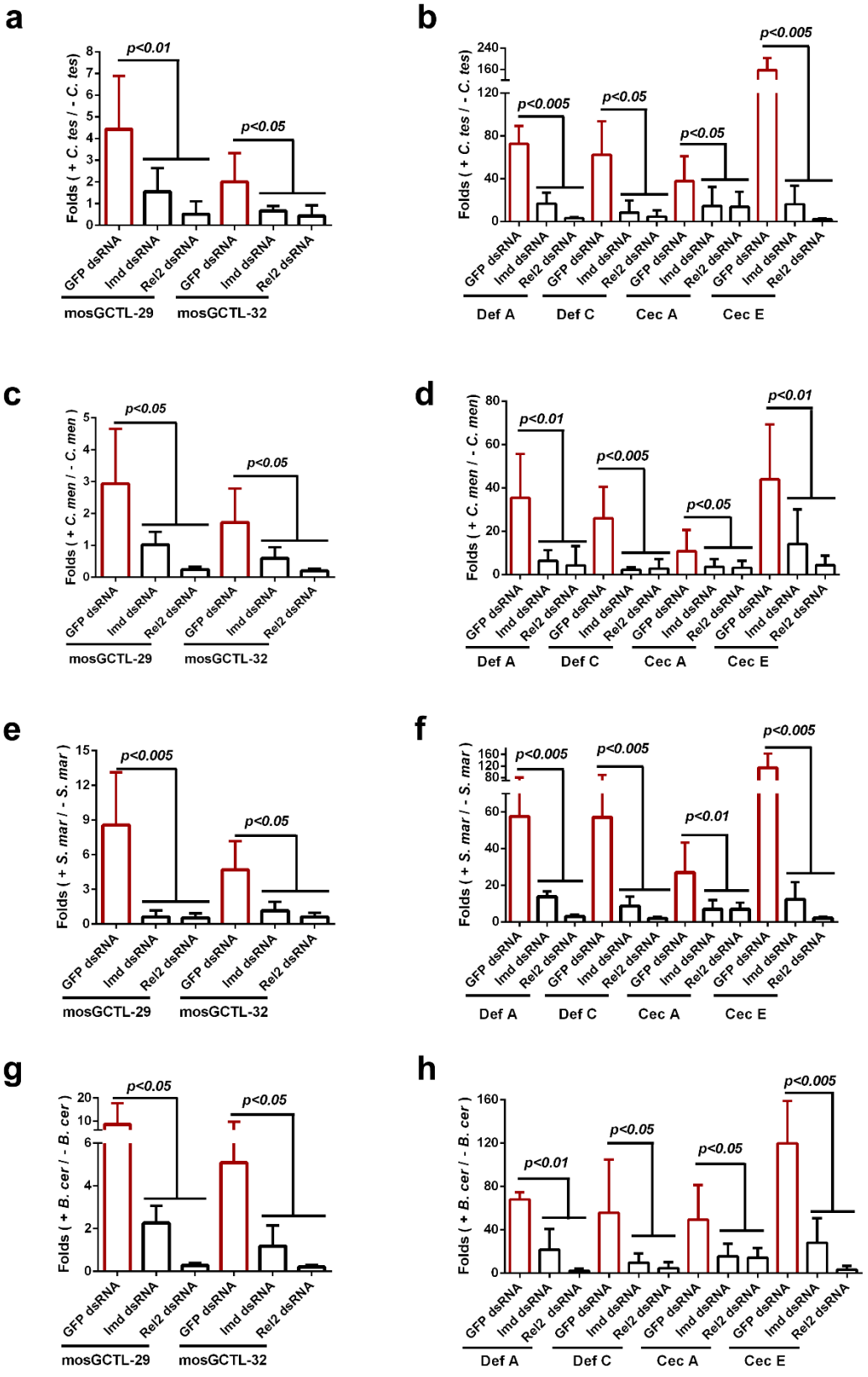
Supplementary Figure 2. Validation of the specificity of qPCR primers for the 16S gene of gut bacteria. *C. testosteroni* (a), *C. meningosepticum* (b), *S. marcescens* (c) and *B. cereus* (d), which were serially diluted by PBS buffer, were inoculated into antibiotic-treated mosquitoes, respectively. The total RNA from the antibiotic-treated and mock mosquitoes was isolated to synthesize cDNA, and subsequently the cDNA was used for the detection of the 16S gene of these bacteria. The primers for qPCR detection are described in Supplementary Table 5. Data are represented as mean ±SD in each group.



Supplementary Figure 3. Detection of mosGCTLs in the mosquito midgut. The female *A. aegypti* were cryo-sectioned, and slides were used for *in situ* staining. The anti-mosGCTL mouse polyclonal antibody and anti-mouse IgG Alexa-546 antibody were used for surface staining of the mosGCTL proteins (Red). Nuclei were stained blue with To-Pro-3 iodide. Images were examined using the 10× and 63× objective lens of a Zeiss LSM 780 meta confocal microscope.



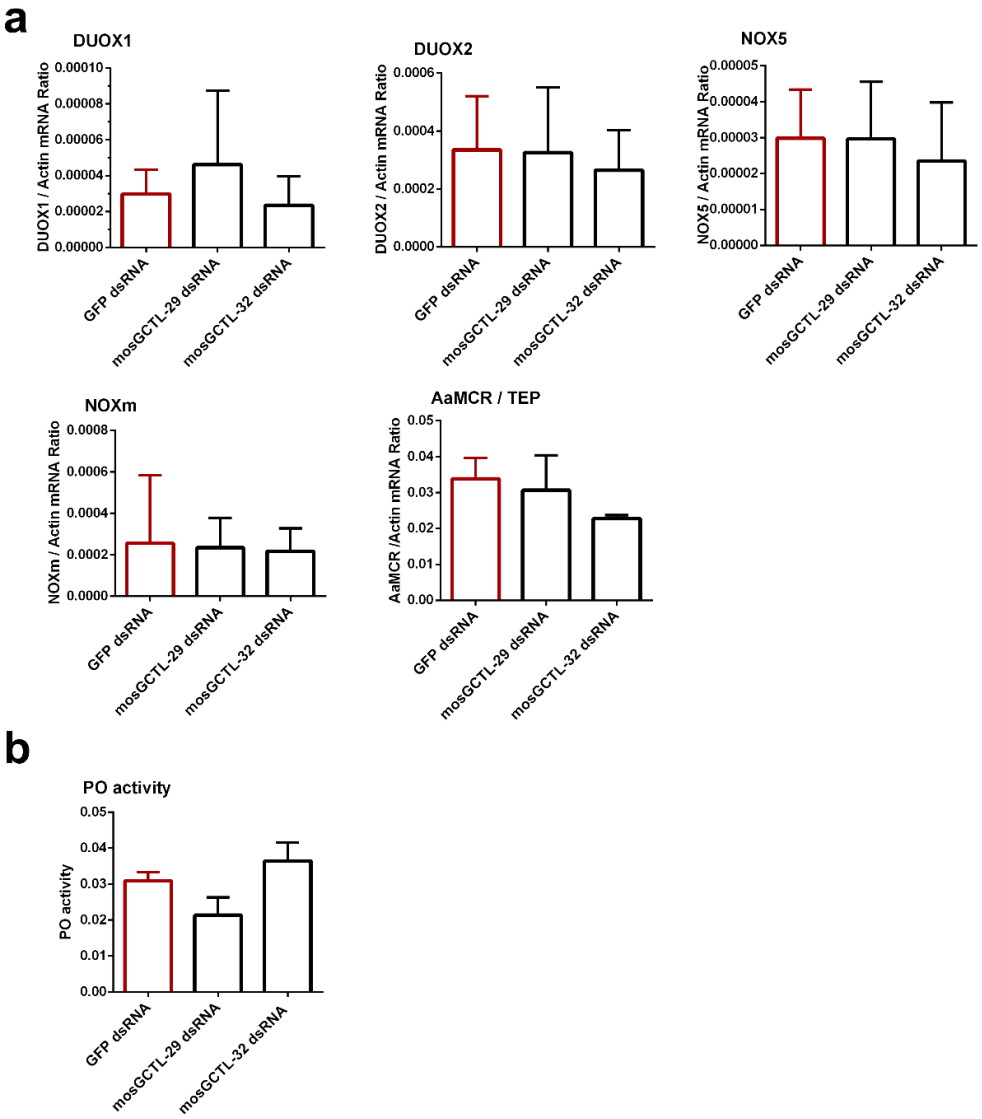
Supplementary Figure 4. The role of the Toll and JAK-STAT signaling pathways in *mosGCTL* induction. The key factors in the Toll (a, *Rel1A* and *Myd88*) and JAK-STAT (b, *Dome* and *Stat*) pathways were silenced in *A. aegypti*. 0.005 O.D. *E. coli* cells in PBS was sequentially microinjected 3 days later, and the *mosGCTL* induction was assessed 4 hr after bacterial inoculation. Mosquitoes inoculated with *GFP* dsRNA and subsequently infected with *E. coli* were included as controls. The induction is presented as the fold change relative to that in the uninfected mosquitoes. Data are represented as mean ± SD in each group and analyzed using the non-parametric *Mann-Whitney* test.



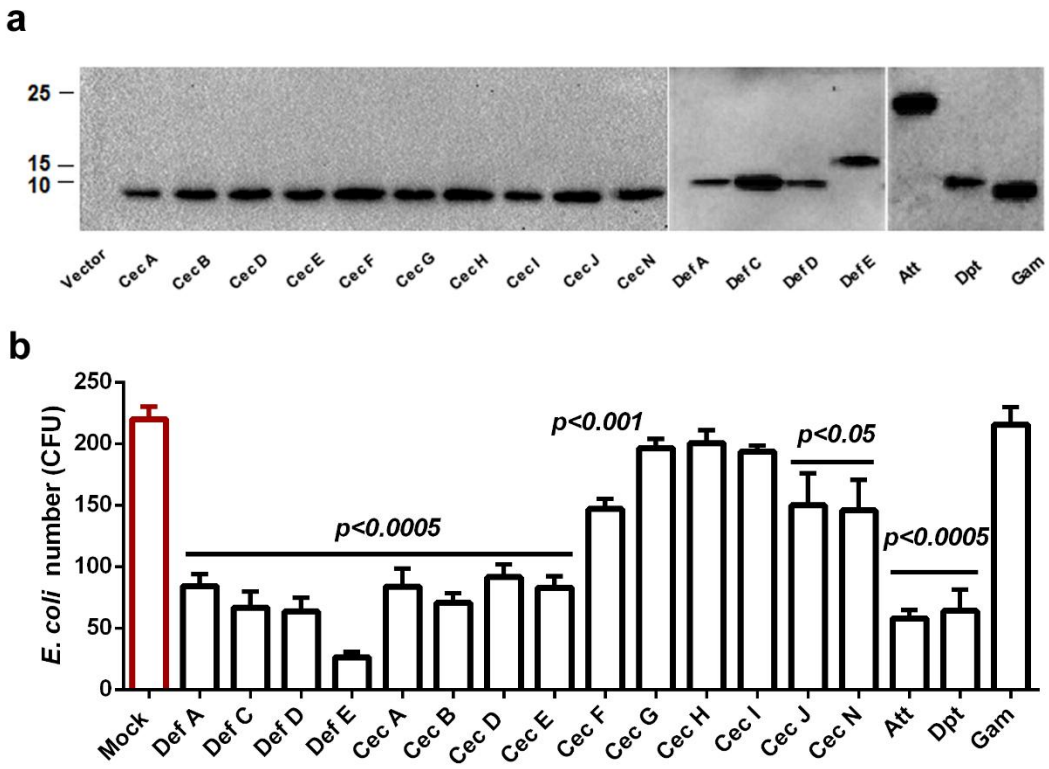
Supplementary Figure 5. The role of the Imd pathway in *mosGCTLs/AMPs* induction.

The key factors in the Imd pathway (*Imd* and *Rel2*) were silenced in *A. aegypti*. 0.05 O.D. of

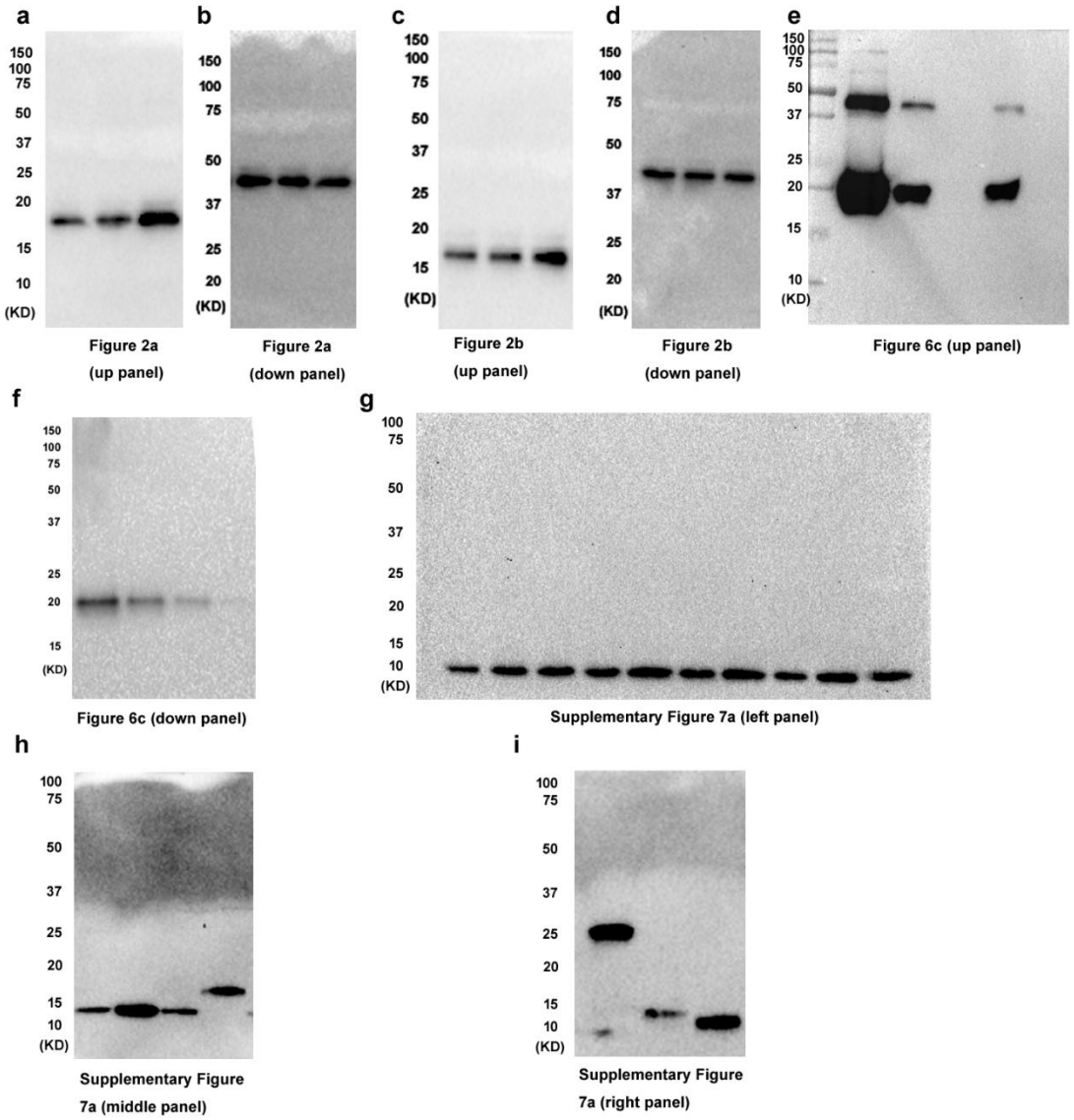
C. testosteroni (*C. tes*) (a, b), *C. meningosepticum* (*C. men*) (c, d), *S. marcescens* (*S. mar*) (e, f) and *B. cereus* (*B. cer*) (g, h) in PBS was sequentially inoculated 3 days later, respectively, and the expression of inducible *mosGCTLs* (a, c, e, g) and *AMPs* (b, d, f, h) was assessed 4 hr after bacterial inoculation. Mosquitoes inoculated with *GFP* dsRNA and subsequently infected with bacteria were included as controls. qPCR analysis was normalized to *A. aegypti actin* (*AAEL011197*). The induction is presented as the fold change relative to that in the uninfected mosquitoes. The experiment was repeated 2 times with similar results. Data are represented as mean ±SD in each group and analyzed using the non-parametric *Mann-Whitney* test.



Supplementary Figure 6. The role of *mosGCTLs* in the regulation of immune responses. **a,** Knockdown of *mosGCTL-29* and *mosGCTL-32* did not regulate the expression of the ROS-related *NADPH* oxidase and *TEP* genes. Gene expression was determined by SYBR Green® qPCR and normalized to *A. aegypti* actin. The qPCR primers are shown in Supplementary Table 5. **b,** Silencing *mosGCTL-29* and *mosGCTL-32* did not regulate the melanization activity in the mosquitoes. The mosquito lysates was collected by centrifugation at 3,000 rpm for 10 min at 4 ℃ to remove debris. The PO activity assays were performed in 96-well plates. Subsequently, 100 μl of 50 mM sodium phosphate buffer (pH 6.5) containing 2 mM dopamine was added to 20 μl of cell culture medium. PO activity was monitored over 30 min by measuring the absorbance at 490 nm using a plate reader. Data are represented as mean ±SD in each group.



Supplementary Figure 7. The role of AMPs in the elimination of *E. coli* cells. a, The 17 *A. aegypti AMP* genes were cloned into the pMT/Bip/V5-His A vector and individually expressed in *Drosophila* S2 cells. The recombinant AMPs in the supernatant were detected via western blotting with an anti-V5 antibody. **b,** Detection of the anti-bacterial activity of AMPs. The supernatants with AMPs were individually mixed with the *E. coli* cells. After 1 hr of incubation, bacterial viability was assessed by a CFU assay. The experiment was repeated 3 times with similar results. Data are represented as mean ±SD in each group and analyzed using the non-parametric *Mann-Whitney* test.



Supplementary Figure 8. Full-length blots from Figures 2, 6 and Supplementary Figure 7. a-d, The abundance of mosGCTL-29 and mosGCTL-32 in *A. aegypti*. **e,** The interaction between mosGCTL-32 and bacterial cells by elution assay. **f,** The interaction between mosGCTL-32 and bacterial cells by competitive assay. **g-i,** Expression of AMPs in *Drosophila* S2 cell supernatant. Molecular weight standards are shown on the left.

Supplementary Table 1. The 16S rDNA-based phylogenetic affiliation of culturable microorganisms from the *A. aegypti* midgut

Bacterium	Gram staining	Percent in total sequenced microorganisms (%)
Alcaligenes sp.	-	2.5
Acinetobacter sp.	-	2.5
Achromobacter sp.	-	2.5
Bacillus simplex	+	2.5
Bacillus cereus	+	7.5
Comamonas testosteroni	-	17.5
Chromobacterium aquaticum	-	5.0
Chryseobacterium meningosepticum	-	12.5
Chryseobacterium sp.	-	7.5
Leucobacter sp.	+	2.5
Pseudomonas protegens	-	5.0
Serratia marcescens	-	25.0
Sphingobium sp.	-	2.5
Staphylococcus hominis	+	5.0

Supplementary Table 2. *mosGCTL* orthologs in *Culex quinquefasciatus*

mosGCTL-29 (183AA) orthologs in *Culex quinquefasciatus*

Gene Number	Name	Lengh(AA)	Query cover	Identity
CPIJ000449	C-type lectin	160	69%	62%
CPIJ015401	C-type lectin	116	61%	63%
CPIJ006802	C-type lectin	186	72%	51%
CPIJ006813	C-type lectin	172	92%	42%
CPIJ006812	C-type lectin	172	92%	41%

mosGCTL-32 (159AA) orthologs in *Culex quinquefasciatus*

Gene Number	Name	Lengh(AA)	Query cover	Identity
CPIJ007869	C-type lectin	307	77%	55%
CPIJ014105	C-type lectin	156	88%	37%
CPIJ015095	C-type lectin	162	90%	34%
CPIJ001323	C-type lectin	136	72%	38%
CPIJ009922	C-type lectin	173	77%	32%

Supplementary Table 3. *mosGCTLs* expression after systemic bacterial challenge in *A. aegypti*

Gene Symbol	Gene Number	*mosGCTLs* Regulation (Fold/Mock) post *E. coli* challenge	*mosGCTLs* Regulation (Fold/Mock) post *S. marcescence* challenge	*mosGCTLs* Regulation (Fold/Mock) post *C. testosteroni* challenge	*mosGCTLs* Regulation (Fold/Mock) post *C. meningosepticum* challenge	*mosGCTLs* Regulation (Fold/Mock) post *B. cereus* challenge
mosGCTL-1	AAEL000563	0.94	1.98	0.59	2.04	0.62
mosGCTL-2	AAEL000533	1.11	1.15	16.11	7.06	2.08
mosGCTL-3	AAEL000535	0.69	1.97	0.96	10.43	0.90
mosGCTL-4	AAEL000543	1.14	1.17	0.96	1.18	1.21
mosGCTL-5	AAEL000556	0.62	0.92	0.67	0.62	0.84
mosGCTL-6	AAEL000283	N/A*	N/A	N/A	N/A	N/A
mosGCTL-7	AAEL002524	1.93	2.67	2.33	1.86	3.78
mosGCTL-8	AAEL004679	1.44	2.99	0.52	3.76	0.64
mosGCTL-9	AAEL005482	0.63	0.76	0.58	1.08	1.31
mosGCTL-10	AAEL005641	4.64	12.51	16.56	11.39	67.65
mosGCTL-11	AAEL006456	N/A	N/A	N/A	N/A	N/A
mosGCTL-12	AAEL008299	1.04	1.24	0.52	4.56	1.27
mosGCTL-13	AAEL008681	N/A	N/A	N/A	N/A	N/A
mosGCTL-14	AAEL009209	1.46	1.59	0.51	2.87	0.54
mosGCTL-15	AAEL010992	0.96	1.27	0.70	3.53	0.52
mosGCTL-16	AAEL011070	0.81	0.96	1.42	1.11	1.15
mosGCTL-17	AAEL011079	N/A	N/A	N/A	N/A	N/A
mosGCTL-18	AAEL011402	1.30	0.49	0.72	3.78	0.58

mosGCTL-19	AAEL011404	0.79	1.35	1.04	3.20	0.58
	AAEL011407	*90.8% Nucleotide identity to AAEL011404*				
mosGCTL-20	AAEL011408	1.72	1.19	1.19	1.39	1.17
mosGCTL-21	AAEL011446	N/A	N/A	N/A	N/A	N/A
mosGCTL-22	AAEL011453	0.70	2.12	1.83	2.03	4.92
mosGCTL-23	AAEL011455	0.67	0.46	1.28	0.69	1.78
mosGCTL-24	AAEL011607	3.05	5.05	3.51	4.53	3.56
mosGCTL-25	AAEL011609	N/A	N/A	N/A	N/A	N/A
mosGCTL-26	AAEL017265	2.26	5.80	1.82	3.01	2.69
mosGCTL-27	AAEL011612	0.72	0.79	0.85	1.55	0.53
mosGCTL-28	AAEL011616	2.79	2.37	0.61	3.23	0.75
mosGCTL-29	AAEL011619	5.76	9.48	5.78	6.96	13.83
mosGCTL-30	AAEL011621	2.01	2.07	0.80	2.91	0.82
mosGCTL-31	AAEL011622	4.89	7.97	3.39	3.20	3.36
mosGCTL-32	AAEL012353	2.05	2.89	2.98	3.78	2.93
	AAEL014382	*98.3% Nucleotide identity to AAEL011607*				
mosGCTL-33	AAEL014385	1.61	4.1	1.03	2.35	0.65
	AAEL014390	*98.9% Nucleotide identity to AAEL011619*				

***** N/A, gene not analyzed.

Red number represents the increased expression by more than 2 folds.

Supplementary Table 4. *AMPs* regulation by knockdown of *mosGCTL-29* and *mosGCTL-32* in *A. aegypti*

Gene Symbol	Gene Number	Function	Fold Regulation (Mean) in whole body		Fold Regulation (Mean) in midgut	
			mosGCTL-29 dsRNA	mosGCTL-32 dsRNA	mosGCTL-29 dsRNA	mosGCTL-32 dsRNA
Def-A	AAEL003841	Defensin	1.25	0.81	1.44	0.65
Def-C	AAEL003832	Defensin	1.00	0.64	1.18	1.15
Def-D	AAEL003857	Defensin	1.23	0.87	1.13	1.25
Def-E	AAEL003849	Defensin	1.48	1.38	0.90	0.97
Cec-A	AAEL000627	Cecropin	1.01	0.63	1.74	1.28
Cec-B	AAEL004223	Cecropin	1.20	0.85	0.90	1.14
Cec-D	AAEL000598	Cecropin	1.22	1.15	0.89	0.84
Cec-E	AAEL000611	Cecropin	1.37	1.27	0.83	1.05
Cec-F	AAEL000625	Cecropin	1.29	0.72	0.76	1.13
Cec-G	AAEL015515	Cecropin	0.92	1.29	0.91	1.61
Cec-H	AAEL017211	Cecropin	1.13	1.36	1.22	1.35
Cec-I	AAEL000775	Cecropin	0.86	1.21	0.68	0.81
Cec-J	AAEL000777	Cecropin	0.98	1.28	1.18	1.07
Cec-N	AAEL000621	Cecropin	1.06	1.14	1.33	1.27
Dpt	AAEL004833	Diptericin	0.68	0.87	0.83	1.03
Gam	AAEL004522	Gambicin	0.98	1.23	0.86	1.44
Att	AAEL003389	Attacin	1.33	0.74	1.05	1.47

Supplementary Table 5. Primers for qPCR, dsRNA synthesis and genes cloning

The primers for RT-qPCR	Upper primer	Lower primer
mosGCTL-29	CAATGCTGGCGCAAATGAAC	GATTGGACTGACAGATTCAC
mosGCTL-32	TCGAGGCATCCGAATACTGC	CGGCCTTGGCCTCCTTTACT
CPIJ007869	TATATCTCTAATGAGGCTGAACTGG	GTGTTTTTCGAGCGTGTTCAGAACT
C. pipiens pallens Actin	TACGAACTTCCCGACGGA	GATACCGCACGATTCCATA
Imd	TCGTCAAACTCGGTTTTCCT	TGGCGGAGTTGAAGGTAAAG
Rel2	GTTCCCGGATTAGCTACTGTG	CCGTTCCGTTTGCAATGAC
Myd88	CGTGATTGGCGAGGGTTGTTTC	ATCCGCTCCAATGCTCGTTTCC
Rel1A	GCACCCAACAGTTCCAGAATC	GAACTGTTGTTGTTGTTGCTG
Dome	AAACGGTGGCAAAATGAACT	CATACAGCCGGCTTTCTTCT
Stat	CACACAAAAAGGACGAAGCA	TCCAGTTCCCCTAAAGCTCA
Bacteria Universal 16S rRNA	TCCTACGGGAGGCAGCAGT	GGACTACCAGGGTATCTAATCCTGTT
C. testosteroni 16s rRNA	CGAAAAGCCTGGGGCTAATAT	CCATCTCTGGTAAGTTCCTGC
C. meningosepticum 16s rRNA	ACATGGTCACCACTTCGTGAGA	GTCGCATCCGTTGTTGTCACTT
B. cereus 16s rRNA	CGCCTCGTTGGATGACG	GATATACATTCACTTGACTAATACCG
S.marcescens 16s rRNA	TTGCTCTTTAACAATCTGGAA	TCACAACCCGAAGATGTTTCC
Defensin A	CTATCAGGCTGCCGTGGAG	CAATGAGCAGCACAAGCACTATC
Defensin C	CTTTGTTTGATGAACTTCCGGAG	GAACCCACTCAGCAGATCGC
Cecropin A	CAAAGTTATTTCTCCTGATCGCG	CTGCACCTTCCAATTTCTTTCC
Cecropin E	GAAAGCACTTCCCGTAGTAACTG	GTTAGTTATCACAATTCCCCCATG
DUOX1	ATGCTGAGCCCAGAGAGATT	TTTCCTCATCAGTCCAATCG
DUOX2	CGTGGCGGAGTATTTCAGT	GCAAATTCATCAGCAACCAC
NOX5	CCTGGACCAGCACATCTATC	TGAAGTTCTTTGCGTTGACC
NOXM	TCCACAATACGGTTTCGCTA	GCCGTCCAACAGAAATTGTA
AaMCR/TEP	TCCGTCCCGGTCAGATTTACAA	TCTACGCCGTCACGGGAGATAC
A.aegypti Actin	GAACACCCAGTCCTGCTGACA	TGCGTCATCTTCTCACGGTTAG
The primers for double-strand RNA synthesis	**Upper primer**	**Lower primer**
dsRNA GFP	TAATACGACTCACTATAGGGGTGAGCAAGGGCGAGGAG	TAATACGACTCACTATAGGGCATGATATAGACGTTGTGGCTGTT
dsRNA mosGCTL-29	TAATACGACTCACTATAGGGCCCAATTGTTGACGAGGATG	TAATACGACTCACTATAGGGCCGATCTCAAGACAGTGTTC
dsRNA mosGCTL-32	TAATACGACTCACTATAGGGTGCGGTTGGCCATAGTTGAT	TAATACGACTCACTATAGGGAGCCGCCTTTTCGTAGTTTTC
dsRNA Imd	TAATACGACTCACTATAGGGAAGGCCTTCTACCAATGTAA	TAATACGACTCACTATAGGGGCACAGTGTTTTAGACTTTC
dsRNA Rel2	TAATACGACTCACTATAGGGCAAGATTCGGTGTTCGCTG	TAATACGACTCACTATAGGGCCCAGTCCTGCCAGATCTC
dsRNA Myd88	TAATACGACTCACTATAGGGGGCGATTGGTGGTTGTTATT	TAATACGACTCACTATAGGGTTGAGCGCATTGCTAACATC
dsRNA Rel1A	TAATACGACTCACTATAGGGGCACAATCTGGTCGGCAAG	TAATACGACTCACTATAGGGGGTATGCTGGAACTCGCCG
dsRNA Dome	TAATACGACTCACTATAGGGCCATCTCCACCACGAAACTT	TAATACGACTCACTATAGGGCCGGTGGTTGCCATATAATC
dsRNA Stat	TAATACGACTCACTATAGGGTGGAATACCAAGGACCAAAT	TAATACGACTCACTATAGGGTGCCCAACTGCAAAGCTTGA
dsRNA CPIJ000449	TAATACGACTCACTATAGGGGCGGCATCTCCGATAAACGC	TAATACGACTCACTATAGGGCGCCCAATCTCCATGCAATC
dsRNA CPIJ015401	TAATACGACTCACTATAGGGATGGAAGCCTGGAGACGT	TAATACGACTCACTATAGGGGCTGCTTCCACCCACAAGGT
dsRNA CPIJ006802	TAATACGACTCACTATAGGGTGTCTCCCAAACTCGCTCTT	TAATACGACTCACTATAGGGCGTCGTAATCCACACAAAGTG
dsRNA CPIJ006813	TAATACGACTCACTATAGGGGCAGTCCTGGTCCTTACCATT	TAATACGACTCACTATAGGGTGTCATTCCAAGTCGTTCCA
dsRNA CPIJ006812	TAATACGACTCACTATAGGGCTCGCCTCTCCGGACTTCAAC	TAATACGACTCACTATAGGGTCGTTGCCTCCGTAATTGTT
dsRNA CPIJ007869	TAATACGACTCACTATAGGGCTTCTACCACGTTCAACTGG	TAATACGACTCACTATAGGGTACAGCTTGGTATCACACGG
dsRNA CPIJ014105	TAATACGACTCACTATAGGGGCCGTCGAGTACTGCACCTAC	TAATACGACTCACTATAGGGTGACCTGTTGCAGTCGTCATC
dsRNA CPIJ015095	TAATACGACTCACTATAGGGCAGGCAAACTGGCATGGA	TAATACGACTCACTATAGGGTGCACCCGGGGCAGTGTATGA
dsRNA CPIJ001323	TAATACGACTCACTATAGGGGTTTCTGATTGTGGCTGCGT	TAATACGACTCACTATAGGGCAGCCTCGATCATTCCAGTG
dsRNA CPIJ009922	TAATACGACTCACTATAGGGGTTGTGTCCGCCATAGTCAC	TAATACGACTCACTATAGGGTCCGTGTTGTTGCTCAGCAA
The primers for cloning into pMT/BiP/V5-His/A	**Upper primer**	**Lower primer**
mosGCTL-29 (V5 tag in C-terminal)	CCGGAATTCCTCCCCAATTGTTGACGAG	GCTCTAGACGACCAGATTGGACTGAC
mosGCTL-32 (V5 tag in C-terminal)	CCGGAATTCCCAATCCAAGTATCAAATC	GCTCTAGAAAACTCTTGGATGCAAGC
Defensin A	CCCTCAAGATCTGCCTACCCACAGGAACCGGTGCTGG	CCCTCATCTAGAATTCCGGCAGACGCACACCTTCTTGGAG
Defensin C	CGAAGATCTCTCCCAGAGGAACTGGCCG	CAGACTCGAGATTTCGACAAACGCAAACCTTTTTC
Defensin D	CGAAGATCTGCCTACCCACAGGAACCGG	CAGACTCGAGATTCCGGCAGACGCACACC
Defensin E	GCCACCAGATCTGCGCCACAAGAGAGTGTT	GCCACCTCTAGATGTGCGGCAGACGCAGACTCCTTGA
Cecropin A	GATCTGGTGGCCTTAAGAAGCTGGGAAAGAAATTGGAAGGTGCAGGAAAACGAGTTTTCAATGCCGCCGAGAAGGCTCTTCCAGTTGTAGCTGGGGCTAAAGCTCTAT	CTAGATAGAGCTTTAGCCCCAGCTACAACTGGAAGAGCCTTCTCGGCGGCATTGAAAACTCGTTTTCCTGCACCTTCCAATTTCTTTCCCAGCTTCTTAAGGCCACCA
Cecropin B	GATCTGGTCGGCTGAAGAAGCTGGGAAAAAAGATTGAAAGGGCCGGCAAGCGTGTCTTCAATGCCGCCCAGAAGGGACTACCCGTTGCAGCTGGCATCAAGGGACTGGGAAGAT	CTAGATCTTCCCAGTCCCTTGATGCCAGCTGCAACGGGTAGTCCCTTCTGGGCGGCATTGAAGACACGCTTGCCGGCCCTTTCAATCTTTTTTCCCAGCTTCTTCAGCCGACCA
Cecropin D	GATCTGGTGGCCTGAAGAAGCTGGGAAAGAAATTGGAAGGAGCCGGCAAGCGAGTATTCAAGGCTTCGGAAAAGGCTCTCCCGGTTGTTGTAGGAATAAAAGCGATTGGAAAAT	CTAGATTTTCCAATCGCTTTTATTCCTACAACAACCGGGAGAGCCTTTTCCGAAGCCTTGAATACTCGCTTGCCGGCTCCTTCCAATTTCTTTCCCAGCTTCTTCAGGCCACCA
Cecropin E	GATCTGGTGGTCTGAAGAAGCTGGGGAAGAAATTGGAAGGAGTCGGAAAACGTGTATTCAAAGCTTCTGAGAAAGCACTTCCCGTAGTAACTGGTTACAAAGCCATAGGAAAAT	CTAGATTTTCCTATGGCTTTGTAACCAGTTACTACGGGAAGTGCTTTCTCAGAAGCTTTGAATACACGTTTTCCGACTCCTTCCAATTTCTTCCCCAGCTTCTTCAGACCACCA

Cecropin F	GATCTGGTGGCCTGAAGAAGCTGGGAAAGAAATTGGAAGGAGTCGGCAA GCGAGTGTTCAAAGCATCGGAAAAAGCCCTTCCAGTTATAACGGGATAC AAGGCTGTTGGAAAGT	CTAGACTTTCCAACAGCCTTGTATCCCGTTATAACTGGAAGGGCTTTTTC CGATGCTTTGAACACTCGCTTGCCGACTCCTTCCAATTTCTTTCCCAGC TTCTTCAGGCCACCA
Cecropin G	GATCTGGTGGCCTCAAGAAGCTGGGAAAGAAATTGGGAGGTGCAGGAAA ACGAGTTTTCAATGCTGCCGAGAAGGCTCTTCCTGTTGTAGCTGGGGCT AAAGCTCTAGGAAAGT	CTAGACTTTCCTAGAGCTTTAGCCCCAGCTACAACAGGAAGAGCCTTCT CGGCAGCATTGAAAACTCGTTTTCCTGCACCTCCCAATTTCTTTCCCAG CTTCTTGAGGCCACCA
Cecropin H	GATCTGGAAAGCTGAAGAAGATTGGCAAAAAAGTTGAAAAGACGGGCAAA CACGTCGCCAATGCAGCTCAAAAGGCTGGACCTGTCGTCGCTGGCGTG GCGGCTCTGGTTT	CTAGAAACCAGAGCCGCCACGCCAGCGACGACAGGTCCAGCCTTTTGA GCTGCATTGGCGACGTGTTTGCCCGTCTTTTCAACTTTTTTGCCAATCT TCTTCAGCTTTCCA
Cecropin I	GATCTGGAAAGCTGAAGAAGTTGGGCAAAAAGATAGAAAAGGCTGGCAAA AACGTAGTCCATGCTGTCGATAAGGTGATACCAACTGTCCTAGGGTTA	CTAGAGTTTTTATCTTTGTTGTTCTCGTTTTCACGGATTTGTTGTAACCC TAGGACAGTTGGTATCACCTTATCGACAGCATGGACTACGTTTTTGCC
Cecropin J	GATCTGGAAAGTTGAAGAAGCTGGGCAAAAAGATTGAAAAGGCTGGCAAA CACGTGGTCCACGCTGTCGATAAGGTGATACCAACTGTCCTGGGATTA	CTAGAGTTTTTATCTTTGTTGTTTTCATTTTCACGGATTTTTTGTAATCCC AGGACAGTTGGTATCACCTTATCGACAGCGTGGACCACGTGTTTGCC
Cecropin N	GATCTCAGCAACAGTGCGGCGTGGAAGCGGCGCCCAGGTGGAAATTCG GCAAGAAATTGGAAAAAGTCGGGAAAAATGTGTTTAACGCTGCTAAGAAG GCACTGCCAGTCGTTGCCGGGTACAAGGCCCTAGGAC	TCGAGTCCTAGGGCCTTGTACCCGGCAACGACTGGCAGTGCCTTCTTA GCAGCGTTAAACACATTTTTCCCGACTTTTTCCAATTTCTTGCCGAATTT CCACCTGGGCGCCGCTTCCACGCCGCACTGTTGCTGA
Attacin	CCCTCAAGATCTCAACTCCATGGTTCGCTCACTCCAGGTAAC	CCCTCATCTAGAGAAGCGATGACTCAGTCCAAACCCGGC
Diptericin	GCCACCAGATCTGCATGTGGACCAATTCAG	GCCACCTCTAGAGTAGTTGTGTGTAAGTGT
Gambicin	CCCTCAGAATTCGCCACCATGGCTTTGGTGTTTGTTTATGT	CCCTCAGGGCCCGCGGCCCTCGATTCCGATGTAGCATTCGGTGA
The primers for cloning into pET28	**Upper primer**	**Lower primer**
mosGCTL-29 (His tag in both N and C-terminal)	CGCCTAGCTAGCTCCCCAATTGTTGACGAG	TATCCGCTCGAGCGACCAGATTGGACTGAC
mosGCTL-32 (His tag in both N and C-terminal)	CGCCTAGCTAGCCAATCCAAGTATCAAAT	TATCCGCTCGAGAAACTCTTGGATGC
The primers for PCR	**Upper primer**	**Lower primer**
Bacteria Universal 16s rDNA	AGAGTTTGATCCTGGCTCAG	TACGGYTACGCTTGTTACGACTT