Supporting Information

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Fig. S1. Phylogenic analysis of the PGRPs using T7 *N*-acetylmuramoyl-L-alanine amidase (T7 lysozyme) (P00806) as outroot. *G. m. morsitans* (GmmPGRP-LC: DQ307161 and GmmPGRP-LB: DQ307160), *D. melanogaster* (DmPGRP-LCx: NM_168324; DmPGRP-LCa:NM_140041; DmPGRP-LCy:NM_206308; DmPGRP-LE:AF313391; DmPGRP-SA:AF207541; DmPGRP-SC1b:AF207542 and DmPGRP-LB:NM_169393), *Apis mellifera* (AmPGRP-LC:XM_392452), *Homo sapiens* (HsPGRP4:AK292203), *Anopheles gambiae* (AgPGRP-LB:EAA01800) and *S. zeamais* (SzPGRP-LB:CN612423), and *Lutzomyia longipalpis* (LIPGRP:EU124614). Tree generation was done by MEGA3.1, and bootstrap analysis was performed for 5,000 replicates. PGRP-LC and PGRP-LB clusters are indicated in blue and red, respectively.

GIMPGRP LC : - FARPHRDTVVPLNI EVERVEVSHAAS-DICKTLEACIYRLGFICNFHKISKOFOD GINGING SEGREFERGEDLCEAHTKGINSNSLG	I :	340
Empgrp Icx : -Mggrpakrmldaoolpinrvyishaa-egcesrevcsarvvvvcsfhmlsmgwdhugynrivegrgryyeergodyvcantkgynrgsig	I :	432
Empgrp LCa : CMLAOPPOKEIPDLEIPVGLV ALPUNS-ENCSTOAICVLRVRLICTYDIESSOKCDUAMNELICGEGNVYVERGNNKNCAHMNNNNY SOSLS	F :	453
Empgrp LCv : -MGGMPTRGNLKPFKIPVSKVHISERPP-EICTTODSCSYWTRVTCSRHMDTFNWSCWGWNTIWEGRGRNYMEDHTRDNNNNSIG	I :	433
Ampgrp LC. : -MGAOPPTTOLIKMKIPVPYVHISHAT-OFCSTOSECTFYVRFACTFHIESENWSIGGNIGIWEGEGYWWERSEDYMCAHAFGYNNISIG	I :	366
Empgrp LE. : -MLAOKPMDEPLPLOIPVKYWILHAAT-ESSEKRAINVRLIRDMCCFHIESSGWNDHAMNSIWCOTGNTHERGMKTVEAHTLGYNRISLG	I :	273
Empgrp SA. : -WGGKPSIGLHYOVR-PIRYVMIHHWVT-GECSGLLKCAEILONNCAYHONELDFNLHSYNHIJCNLGIVMEETGMGLRCAHTYGYNAIGTG	I :	135
HSPGLYRP4. : -WGARETHCPRMTL-+PAKYGUIFWAG-RTCNISDECRLLVRDICSFYINRLKSCLUGYNALVGOUGALYECVGNVQESSTPGYNDIALG	I :	307
GRMPGRP LB : -MGARDPI-LVEKFICPSAFVWVHHSYTPEACYTTDDCKKAMRSNCDFHOLERCWNDVGNSGICCFGNVVCRGBNVICAHAPKWNDKSVG	i :	121
Empgrp IB. : -WGARLPK-SVEHFOGPAPYVHIHHSYMPAVCYSTPDCMKSMRDMCDFHOLERCWNDHCYSBGIGGIGMIMICRGBNVLCAHAPKWNDKSVG		111
AGPGRP LB. : -WSALPPK-RIEHFAGPIPYVIIHHSYRPAACYNGLOGIAAMOSKCKHOLEROWNDIGYSBAVGGIGPVYGERGENVIGAHAPRWNNRSVG		202
EmPGRP SC1 : -MGGRGAKWTVG-LGNYLSYAHIHHHAG-SYCETRACCNAVLOSVGNYHMISLCWFLHCYNBLIGGTGNWYERGGNNMGAHAAEWNEYSIG		119
SZPGRP LB. : -MGAKPPT-GVENLTIPVPYVVIHHSYIPAACSTKECCINDMOWNCNYHOCNNSWCDIGYNBAVCGINFYVCRGWTAVCAHAPRWNARSIG	i :	101
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GRMPGRP LC : SPICTENTGVENDAGECAFRIM DEARRIKE VENKKIVCAROFAP-BESPGLAMKLIOTEPHETNV	- :	413
Empgrp LCx : SFICTATTRKPNERCTEACOLITOEGWRLKKITTNWRLYGHROLSAAESpgeblyklikkwphoshei	- :	500
Empgrp Lca : Ayiesektiopsakousvtrimerovkigreapserftasskimpsvedrkadamasfanothos	- :	520
Empgrp LCy : TFLCTBRROEPTPKS EACOL BACGWRLKKEKPEMOLLGHROIT-CHLMPGEELWRIIOTWNNWWNLTKTWPDLHMTO	- :	511
Ampgrp LC. : SFICTENTVKPSKQCTYVVQKLIELCVEKGKLAPDYKLLGHRQVSQAVSPGDALYSVIQTWPHOSKEP	- :	434
Impgrp LE. : SFLCCOMKELPTADALINMCRNULARGNEDGHUSTIMRLICHCQCN-SUESPGRRUMEEIQTMPHOYNIEEEEQ		345
Lmpgrp_le. : Sficomkelptadamncrnomargyedghustinrlichcocnsnespgrmmeeiotmphynieeeeo Lmpgrp Sa. : Aficnyvdklpsdaamdaakdunacguoogduselmallagsovisnospgrtunneioenphylsnp	- :	345 203
Lmpgrp_le. : spic_ommelpradammcrnumargnedgeustingrlichgcn-smespgrrumeeigingpaynieeeg Empgrp_sa. : afic_nsudklpsdaam_daakdumacgnoggeiseenallagsqvismespgrrumeigenphalsnp Hasggixpd. : temetsteippnaamelaagdimgcaavkgyutennullughsdvaralsspgganumistrepenphak		345 203 373
LmpGRP LE. : SFICOMMRELPTADAUMMCRNMARGNEDGEUSTIMRLICHGCN-SMESFGRRMMEEIQTMPHBYNTEEEEQ EmpGRP_SA. : AFICMSVDKLPSDAAUQAAKDIMACGVQQGDISEDYALIAGSQVISMQSPGILIMNEIQEDPHBYNTEEEEQ HspGlYRP4. : TEMCTBTGIPDNAAAEEAQDLIQCAWVKGYTENNLLVGHSDVARALSPGQALMNIISTØPHSKH GrmPGRP LB : CIICMARNDLPTDKNUGTRALLAFGUSQCIHRCMQULCHRQVRAABCPGCRLMNIISTØPHSKH	- :	345 203 373 211
LmpGRP_LE. : SFICOMMELPTADAPNMCRNMARGNEDGFUSTDWRLICHGCN-SMESPGRRMEEIGTMPHEYNTEEEG	- : - : - : K :	345 203 373 211 204
LmpGRP_LE. : SFIGOMMELPTADAUMCRNINARGVEDGEUSTINKLICHCQCN-SASSPGRRIMEEIQTMPHEYNIEEEQ	- : - : K :	345 203 373 211 204 278
Lmpgrp_le.: SpiconMkelptadAunAckNutArcyEdgeustinkrichcycn-Smissporringeiginaphaynteeeg	- : - : - : K : - :	345 203 373 211 204 278 185
<pre>Lmpgrp_le. : Spic_OMMELPTADAPMCRN/LARG/EDGFUSTIVRLICHCQCNSh2SPGRR/MELQTM/PHBYNIEEEQ</pre>	- : - : - : - :	345 203 373 211 204 278 185 177
ImpgRP_LE.: SFLCGMKELFTADAUMCRNUARCOEDGFHSTIMRLICHQCNSESPGRRUEEIQTMPFBYNTEEEQ	- : - : - : K : - :	345 203 373 211 204 278 185
LmpGRP_LE.: SFICOMKELPTADAUNMCRNUARCUEDGHSTIMRICHOCK-SUSSFCRRUEEIQTMPHAYLIEEEQ	- : - : - :	345 203 373 211 204 278 185 177

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Fig. S2. Alignment of conserved PGRP domains from *G. m. morsitans* (GmmPGRP-LC: DQ307161, and GmmPGRP-LB: DQ307160) and PGRPs from Fig. S1 including *D. melanogaster* (DmPGRP-LCx; DmPGRP-LCa; DmPGRP-LCy; DmPGRP-LE; DmPGRP-SA; DmPGRP-SC1b; and DmPGRP-LB), *Apis mellifera* (AmPGRP-LC), *Homo sapiens* (HsPGRP43), *An. gambiae* (AgPGRP-LB), and *S. zeamais* (SzPGRP-LB). Three conserved PGRP domains are boxed in black and numbered. The highly conserved residues among all PGRP proteins are shown in black, conserved residues present in the recognition PGRPs and catalytic PGRPs are shown in light gray and dark gray shadow, respectively. Residues interacting with PGN are boxed in red. Residues required for amidase activity are indicated by a star.

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Fig. S3. Tissue specific expression of *pgrp-lc*. *pgrp-lc* is preferentially expressed in the fat body fraction of both male and female adults. In females, *pgrp-lc* levels are significantly higher in the bacteriome (B) than in midgut (MG). *pgrp-lc* expression level was normalized by host β -tubulin.



Fig. 54. The effect of PGN supplementation of the blood meal diet on bacteriome *pgrp-lb* levels (*A*) and on parasite infection prevalence (*B*) in aposymbiotic Gmm^{Wig-} flies. (*A*) Groups of newly enclosed Gmm^{Wig-} were given either normal blood meals or blood meals supplemented with PGN (50 μ g/mL) (Sigma). RNA was prepared from the dissected bacteriomes of 8-day-old Gmm^{Wig-} and corresponding normal blood receiving Gmm^{WT} adults. PGN provisioning resulted in a significant increase *in* the *pgrp-lb* levels of Gmm^{Wig-} flies than normal bloodmeal receiving Gmm^{Wig} flies. The *pgrp-lb* levels were normalized by host *tubulin* and presented as fold change relative to wild type flies. Error bars, standard error (n = 5). (*B*) Groups of flies that received the same treatments as described above (with and without PGN supplementation) were given 1 infectious blood meal containing *T. b. rhodesiense* ($2 \times 10^6/mL$) on day 8. Flies were dissected and midguts were microscopically examined for parasite infections 14 days after infection acquisition. *P* values indicate the level of significance between treatments. Results indicate that Gmm^{Wig-} flies, which had higher *pgrp-lb* levels at the time of parasite acquisition as a result of PGN supplementation, are significantly more resistant to parasite infections that their Gmm^{Wig-} counterparts maintained on normal bloodmeal diets.

Table S1. Primer sets used for dsRNA preparation and qRT-PCR reactions

Primer name	Primer pair sequence			
	F, Forward	R, Reverse		
dsLC	F: 5' TAATACGACTCACTATAGGGACTTATGCCGCAACATGAACA	3'R: 5' TAATACGACTCACTATAGGGACTTCCCAGCCTCTACCTTCG 3'		
dsLB	F: 5' TAATACGACTCACTATAGGGCAACAACAACCAAAAGG 3'	R: 5' TAATACGACTCACTATAGGGGAGTTGGTACTGCCGATGT 3'		
dsGFP	F: 5' TAATACGACTCACTATAGGGTCAGTGGAGAGGGTGAAG 3'	R: 5' TAATACGACTCACTATAGGCTAGTTGAACGGATCCATC 3'		
qPGRP-LC*	F: 5' CCAAGAGCAACCGCAATAAT 3'	R: 5' AAATAAAAGAGCCGCAACGA 3'		
qPGRP-LB*	F: 5' TCAATGATGGGTTGGATGAA 3'	R: 5' GAACGATCACAAACGCAGAA 3'		
qGmmattA	F: 5' ATGCCAACCTCTTCAACGAC 3'	R: 5' CGTAACCTAAGCCTCCACCA 3'		
qGmmtub-β [§]	F: 5' CCATTCCCACGTCTTCACTT 3'	R: 5' GACCATGACGTGGATCACAG 3'		
qPGRP-LC-2 ⁺	F: 5' GGCGCCCACACAAAGGATA 3'	R: 5' CAATTGCGCATCGTTCGGTA 3'		
qGffPGRP-LB [‡]	F: 5' GATCATTCATCATTCGTA 3'	R: 5' ATCCCCACCTATCCCAA 3'		
qPGRP-LB-5 ⁺	F: 5' GATGTAAGCAAACGCCGC 3'	R: 5' CAACACAAAAGCACAACATCCA 3'		
qthiC	F: 5' AAGTTATGATAGAAGGACCAGGAC 3'	R: 5' CCCGGAGCAATATCAGTAGTTAG 3'		
Wigglesworth	nia ^s			
qchi	F: 5' TGGGGACAGTACGATGGCAGAGC 3'	R: 5' TCATAGGCGGTCGGGGATAATTGCG 3'		
Sodalis				

*Primer set used for qRT-PCR analysis in dsRNA treated flies.

[†]Primer set used to test gene silencing efficacy of dsRNA treatment.

[‡]Primer set used for qRT-PCR analysis of *G. f. fuscipes*.

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[§]The same primer pair is used for Wigglesworthia density analysis in G. m. morsitans and G. f. fuscipes.