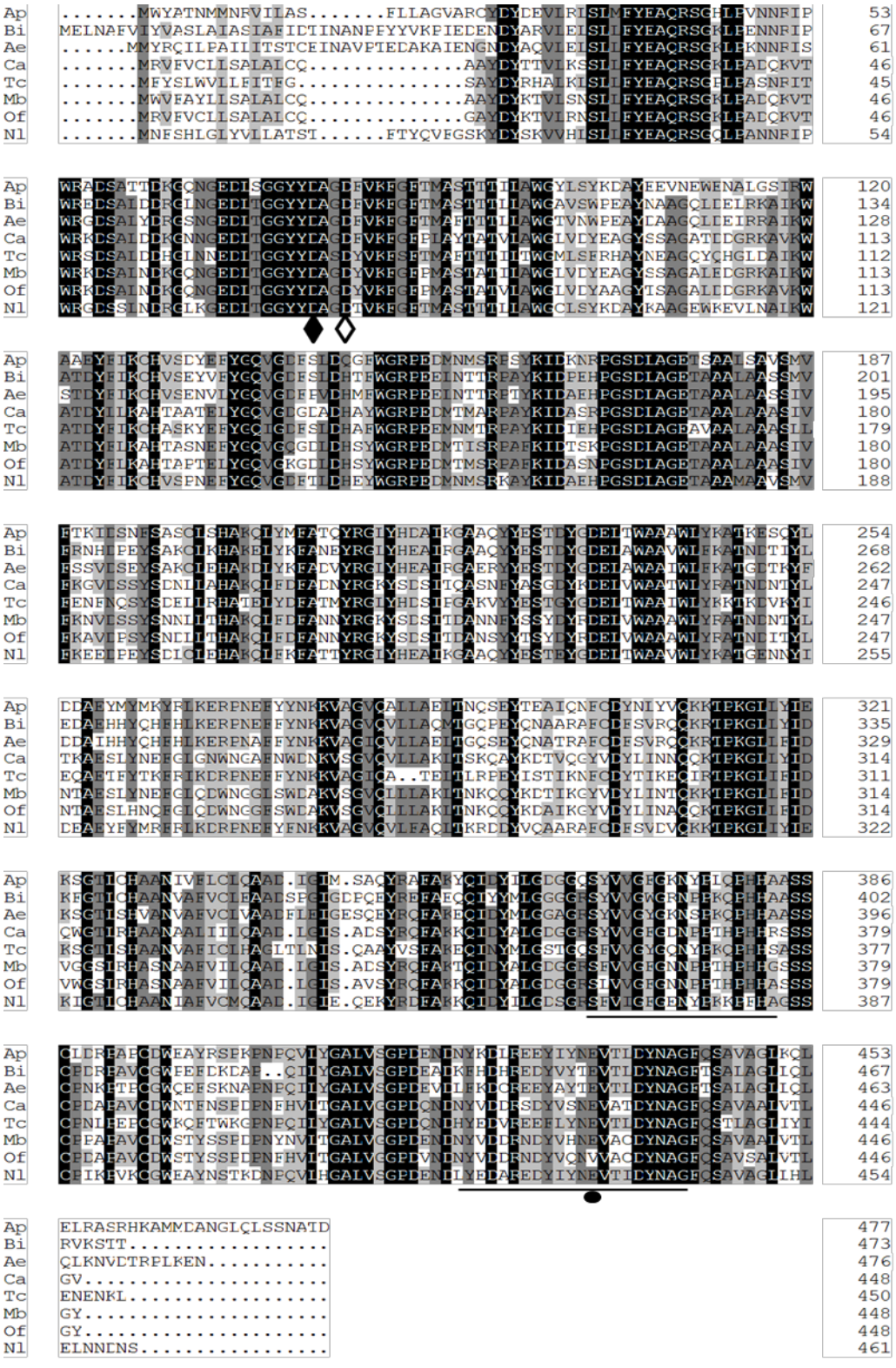
Supplemental Materials

Supplemental Figure S1. Protein alignment of GHF 9 enzymes from insects.

Supplemental Figure S2. Phylogenetic tree for amino acid sequences of NlEG1 and reported insect endogenous endo-β-1,4-glucanases.

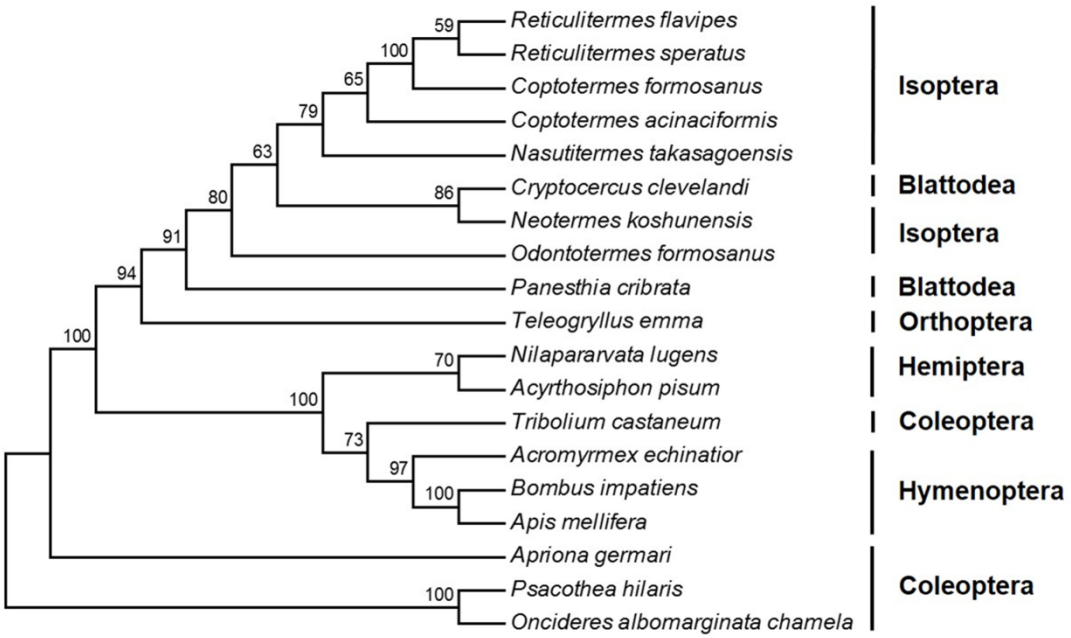
Supplemental Figure S3. The growth phenotype of BPH nymphs 6 days after they had been injected with either *GFP* (left) or *NlEG1* (right) dsRNA. Representative photographs are shown.

Supplemental Table S1. Primers and probes used for qRT-PCR and PCR.



Supplemental Figure S1. Protein alignment of GHF 9 enzymes from insects. Selected proteins accession numbers: Ae (*Acromyrmexechinatior*, EGI63652), Ap (*Acyrthosiphonpisum*, XP_001944774), Bi (*Bombus impatiens*, XP_003494151), Ca (*Coptotermesacinaciformis*, AAK12339), Mb (*Macrotermesbarneyi*, AFD33365), Tc

(*Triboliumcastaneum*, EFA05721), Of (*Odontotermesformosanus*, ADB82658), Nl (*Nilaparvatalugens*, NlEG1). The colors of the aligned sequences showed the degree of amino acid similarity, including identical (black), highly conserved (dark gray) and conserved residues (gray). The catalytic nucleophile, probable secondary nucleophile, and proton acceptor (Glu) of the conserved catalytic domain for GHF 9 are represented as solid diamond, open diamond, and solid circle, respectively. Two GHF 9 signature motifs are in bold below the alignment.



Supplemental Figure S2. Phylogenetic tree for amino acid sequences of NlEG1 and reported insect endogenous endo-β-1,4-glucanases. **S**elected proteins accession numbers: *Acromyrmexechinatior* (XP_396791), *Acyrthosiphonpisum* (XP_001944774), *Apismellifera* (XP_396791), *Aprionagermari* (AAN78326), *Bombus impatiens* (XP_003494151), *Coptotermesacinaciformis* (AAK12339), *Coptotermesformosanus* (ACI75756), *Cryptocercusclevelandi* (AAF63720), *Nasutitermestakasagoensis* (BAA33708), *Neotermeskoshunensis* (BAD12005), *Odontotermesformosanus* (ADB82658), *Oncideresalbomarginatachamela* (ADI24131), *Panesthiacribrata* (AAF80584), *Psacotheahilaris* (BAB86867), *Reticulitemessperatus* (BAA31326), *Reticulitermesflavipes*(AAU20853), *Teleogryllusemma* (ABV32557), *Triboliumcastaneum* (EFA05721).

Supplemental Figure S3. The growth phenotype of BPH nymphs 6 days after they had been injected with either *GFP* (left) or *NlEG1* (right) dsRNA. Representative photographs are shown.

Supplemental Table S1. Primers and probes used for qRT-PCR and PCR.

Gene	Description	Forward primer (5'-…-3')	Reverse primer (5'-…-3')	Probe (5'-…-3')
NlEG1	qPCR	ATGATAGAGGGCTGAAGGGTG	TAGTAATGTCGTGGTGCTGGC	TGTCACCAGCGTCGTAGTAGCCTCC
Actin	qPCR	ATGAAACCGTCTACAACTCG	GCATCCTGTCGGCAATAC	CGTCGACATCCGTAAGGACCT
NlEG1	Cloning	TGTAGGAATTGAGCAGCAAG	ATAAATTCTTTGGTGCATCC	
NlEG1	Protein expression	GGGGTACCAGCAAATACGACTACAGC	GCTCTAGAAATGAGTTGTCATTATTCA	
NlEG1	dsRNAsynthesis	GGATCCTAATACGACTCACTATAGGGCA	GGATCCTAATACGACTCACTATAGGACT	
		CGCTAAGCAACTCTT	CGTTCGGTCTGTCCT	
GFP	dsRNA synthesis	GGATCCTAATACGACTCACTATAGGAA	GGATCCTAATACGACTCACTATAGGCAG	
		GGGCGAGGAGCTGTTCACCG	CAGGACCATGTGATCGCGC	