

```

1      cgccggttataaggccggggccgggacaggagagacaagacttgtgagcttcagtttgcg
61     tccagctactagacgggaaggtagcggtcgtctctctgctcgagcATGTTGTGGGCGGG
1      M L W A G
121    GTTCGTGTCCCTCGCGGCCCTGAGTGTGGGCGGGGGCGGCGTCGGATCGGGTCGCGGC
6      F V S L A A L S V G A G A A S D R V A A
181    GAGGGCGTGCTTCCACCACCCCAACAACGGCGGCACCATCTATGACTTCAACGAGTTGGA
26     R A C F H H P N N G G T I Y D F N E L D
241    CCTCTTCGAGACGAGGAACGTTTCCCTCGCCGACTACAAGGGGAAGGTAGTGTGATCGT
46     L F E T R N V S L A D Y K G K V V L I V
301    CAATGTGGCGACCTACTGNGGTACACTGCTCAGTACCTCGACATGAATGTGTACAAAA
66     N V A T Y X G Y T A Q Y L D M N V L Q N
361    CTCTTACAACAACCTTTGAGATCCTGGGCTTCCCTTGCAACCAATTGCGGAAGCAAGAGCC
86     S Y N N F E I L G F P C N Q F G K Q E P
421    GGCAGCGAACGCCACGGAGCTCTATAACGGGATCAAGTACGTTGCGCCGGGCAACATGTT
106    A A N A T E L Y N G I K Y V R P G N M F
481    CGAGCCAAATTTCACTCTGTTCAAGAAGATCGAAGTGAACGGCGAGAATGAACACCCGCT
126    E P N F T L F K K I E V N G E N E H P L
541    GTACACTTACCTCAAGGAGTACTGCCCGACCACCAGGGAGTCCTTTTCGGATAAGTCGAA
146    Y T Y L K E Y C P T T R E S F S D K S K
601    GCTGTACTACGAGCCGTCGCGCATCAGTGACGTCCGCTGGAACCTGGGAGAAGTTCTTGAT
166    L Y Y E P V R I S D V R W N W E K F L I
661    CACCAAGAGCGGCAAGCCGTTTCATGCGGTACGACCCTGGCACCAAGCCGGAAGAGATCAA
186    T K S G K P F M R Y D P G T K P E E I K
721    GAACGACGTGTTGTTCTCTGAGCCAGGAATTTTAAgtttttttttctgtttttattt
206    N D V L F L L S Q E F *
781    tttattattattttttttttttcatctgaaggcttgatctttttgttaattttgatgtaa
841    gtgtgtgaacttttttgataacttgacagtcagtgttgctactgctgcttcgtgtgtctct
901    tgtgccttccttgtgaccgctgggagtcgcgccttcgccatgcatggtgcatgaagg
961    tgccgccctaaacccccgggtgggcggcgctggaaggcgggaggagctcgggtcgggtc
1021   ttctagcacattcatcctgaccctgtgacctctgccggccatgcggggggtcaaaggctc
1081   acggcgacgactcaaaacactagagtaaatgcacttttacttttcgagttgcttttggtgc
1141   atgaatttctttttgtctttttttttttttttttttttgtctttttctatttttttt
1201   ttctttttttatccgaaggcttgatctttttgttaattttgatgtaaagtggtgaacttt
1261   tttttgataacttgacagtcagtgtgctactgctgcttcgtgtgtctcttgtgccttcct
1321   tgtgaccgctgggagtcgcgccttcgccatgcatggtgccatgaaggcgccctaa
1381   accccccgggtgggcggcgctggaaggcgggggagctcgggtcgggtcttctagcacat
1441   tcatacctgacccctgtgacctctgccggccatgcggggggtcaaaggtcacggcgacgac
1501   tcaaaacactagagtaaatgcacttttacttttcgagttgctttttggtgcatgaatttctt
1561   tttgtctttttttttttttttttttttgtcttttttctatttttttttcttttttta
1621   tccgaaggcttgatctttttgttaat.

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Figure S1. Nucleotide and deduced amino acid sequences of LvGPX3. The ORF of the nucleotide sequences are shown in upper-case letters, the 5' and 3'-UTRs are shown in lower-case letters. Nucleotides and amino acids are numbered on the left of the sequences. The initiation codons are in bold. The signal peptide are in red. And the GSHPx domain are shaded in gray.

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FmGPX : MIVGSSY---NNFEVIAFPCNQFPCCEAAATLEYNGKYVPCNMGPENFLKRRHNGENHPILVYLKEYCTTRESFSDKSK-LVDPVRISVVRWNWKFLLTKSGKFM : 114
LvGPX3 : MIVGNSY---NNFEIIGFPCNQFPCCEAAATLEYNGKYVPCNMGPENFLKRRHNGENHPILVYLKEYCTTRESFSDKSK-LVDPVRISVVRWNWKFLLTKSGKFM : 114
LvGPXL : MIVGNSY---NNFEIIGFPCNQFPCCEAAATLEYNGKYVPCNMGPENFLKRRHNGENHPILVYLKEYCTTRESFSDKSK-LVDPVRISVVRWNWKFLLTKSGKFM : 114
PtrGPX6 : MIVGDSF---NNFEVIAFPCNQFPCCEAGTPEIINGVTVVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 114
PcGPX : LAALQRLD---KNFVLDGFPNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
LpGPX : LAALKEPMGN-EQFEIIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 116
MeGPX : LAALQETFP--EDFVIGFPCNQFPCCEAAAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
NlGPX : LAALQTTYG--NDIATVIGFPCNQFPCCEAAAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
XlGPX3 : MAALHEELKS-NDFVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 116
TcGPX : LVIIFNEYGESKGLRIAIPNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 95
ZnGPX6 : MAALQSNH---QDFVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 114
FmGPX3 : LAALHSHLP---EFCVIAFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 114
CmGPX3 : LAALQNELAP-HGLVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
ApGPX : LAALAEERYE--GMLEIIAIPNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 114
OaGPX3 : LAALQEELEP-FGLVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
HsGPX : LAALQEELEP-FGLVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
PtGPX3 : LAALQEELEP-FGLVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
OcGPX_3 : LAALQEELEP-FGLVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115
GgGPX_3 : LAALQNELGP-YGLVIGFPCNQFPCCEGAGTEIINGKYVPCNGGPENFLKRRHNGENHPILVYLKEYCTTRESFSDANK-LVDPQRNSVVRWNWKFLLTKSGKFM : 115

FmGPX : RDPGKKEEPKNTVAFL : 133
LvGPX3 : RDPGKKEEPKNTVAFL : 133
LvGPXL : RDPGKKEEPKNTVAFL : 133
PtrGPX6 : RDPGKKEEPKNTVAFL : 133
PcGPX : RHTGIQDAPRKLEHL : 134
LpGPX : RNPAPRLNIAIRSVL : 135
MeGPX : RNPMPRFGEDADVHQL : 134
NlGPX : RNDGSGEELGDIHQRL : 134
XlGPX3 : RHHRPSVACVRRPVSYL : 135
TcGPX : RHGRSNEKLIIVKSEKYW : 114
ZnGPX6 : RDASIHNTIADIVKML : 133
FmGPX3 : RPAPLPMAAVRRUITYL : 133
CmGPX3 : RAGPRLNLAIVKMLITYL : 134
ApGPX : RPDSTHRCGADIEGL : 133
OaGPX3 : RHHRRTVNSVKMLITYL : 134
HsGPX : RHHRRTVNSVKMLITYL : 134
PtGPX3 : RHHRRTVNSVKMLITYL : 134
OcGPX_3 : RHHRRTVNSVKMLITYL : 134
GgGPX_3 : RHHRRTVNSVKMLITYL : 134

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Figure S2. Multiple-sequence alignment of the deduced amino acid sequence of GPXs. The sequences were aligned by Clustal X 2.0. Completely conserved residues across all species aligned were shaded in black, and residues with less conserved were shaded in gray.

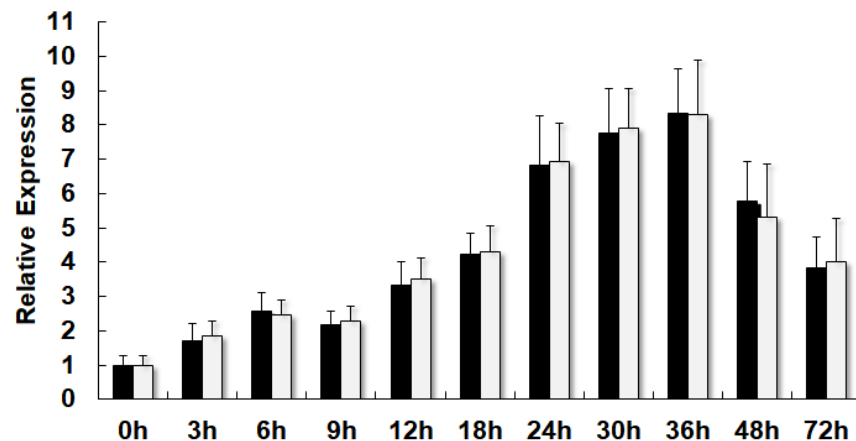


Figure S3. Influence LvGPX3 on *Crustin* expression under LPS treatment. Upon LPS treatment, knockdown expression of *LvGPX3* did not significant influenced the expression of *Crustin* (Genbank accession no. MG883729). For LPS injection, each shrimp was injected with LPS 240 μ g that dissolved in 50 μ L PBS 36 h after dsRNA injection. The bars represent the mean values \pm S.D. of three replicates.