

*Sun et al. Fish Shellfish Immunol. 2017 Jul:66:487-496.

Figure S1. Amino acid sequence alignments of shrimp Type II crustins: *Litopenaeus vannamei* (*Lv*Crustin P, *Lv*Crustin I, Crustin *Lv*1, Crustin *Lv*3, Crustin-like *Lv*), *Litopenaeus setiferus* (Crustin *Ls*1, Crustin *Ls*2, Crustin *Ls*3), *Farfantepenaeus paulensis* (Crus*Fpau*), *Farfantepenaeus brasiliensis* (Crus*Fbra*), *Farfantepenaeus subtilis* (Crus*Fsub*), *Litopenaeus schmitti* (Crus*Lsch*), *Marsupenaeus japonicus* (Crustin *Mj*, Crustin-like *Mj*), *Fenneropenaeus chinensis* (*Fc*-crus 2, Cru*Fc*), *Penaeus monodon* (crustin*Pm*1, crustin*Pm*4, crustin*Pm*5, crustin*Pm*6, crustin*Pm*7, Crustin-like *Pm*) and *Fenneropenaeus indicus* (*Fi*-crustin). The predicted signal peptides are in bold and underlined. Identical amino acid residues are shadowed with black backgrounds. Triangles (\mathbf{V}) indicate the 12 conserved cysteine residues found in crustins. * Sequence obtained from [16] (not deposited in any database).

A

Crustin *Lv* gene (Type IIa)

| GCACACCACTAGCTTGTACTGGAGGCAACCATGAAG GTATGAGCTTGTGTTTGTTTTCGT | | | | | | | | | |
|--|------|--|--|--|--|--|--|--|--|
| <u>M K</u> | | | | | | | | | |
| TGACTTCCGGTCTTTTTTTTTTTTTTTTTTTTTTTTTTT | 120 | | | | | | | | |
| TGTAAGGAGTTTTTTTTTAATGTTTTTTTTTTTGTGTACACCGTTTAAATATCATGTTTTG | 180 | | | | | | | | |
| AGTCATGATATATACAAATGCGAGATAGTTATTGTTGTGAATGTACTTCCCCTTTCGCGG | 240 | | | | | | | | |
| GATATTTATAGATTTGACTATCAAATGTGCATTTCGGATTAAAAAAGATTTTTAGTCCAA | 300 | | | | | | | | |
| AATGCAAACTTCGGTGTTAAATCTATAAATAGTATTATTGCGTGATGGTAACGTAAATAC | 360 | | | | | | | | |
| ACTAAAGATTAAAGCTTATAATCATTCAATTTTGCTATGTCTTCGCCACGAAAATTTGCA | 420 | | | | | | | | |
| ACGAAAATGTCATATACAAACATTTTAGGCTATGCACTGATGTTAGGCATACATA | 480 | | | | | | | | |
| GTGCATAGCCAGGTTGGATAAAAACGTTTACAAGATGAAAGGCTTAATCTAGATCCAAGC | 540 | | | | | | | | |
| TATTACGGTACAATATATTCCGCATTTCGAAAGGTGATTAAAAAGAGATTTCATTATTGA | 600 | | | | | | | | |
| ATGCAAAAGACCATCACACAGGTATTATGGCTTTCTCTCTGTATACAGCATTTTTTCCC | 660 | | | | | | | | |
| TAAAGCTTCCCTAAAATACCGACGTTACGGTAACAGTAACGTTAAGCAATATAGATTGAT | 720 | | | | | | | | |
| ATAGAACAAATCGAAATGACGGAAGTTGATATAAACAATAACACGATAAAGATTGTTTG | 780 | | | | | | | | |
| TCTTAAGAATAATCTTTCTCCCGTTTGTCCCACTGCTCAGACTTATAAAAAAGCCATTGG | 840 | | | | | | | | |
| ACTTTCTCAACAATACAGCAGGGACTCCTTTAACACTGACAACGTTTCCGAACAATGCAA | 900 | | | | | | | | |
| TGACTTTAATTTCTATTTTACACCAGAGTAATTTCTATTTTTAATGCTATTTTTCAATCG | 960 | | | | | | | | |
| TTCTCTTTCAGGGCATCAAGGCGGTGATTCTGTGCGGCCTCTTTACGGCGGTTTTGGCTG | 1020 | | | | | | | | |
| GIKAVILCGLFTAVLA | | | | | | | | | |
| GCAAGTTTCGCGGCTTCGGACAGCCATTTGGAGGTCTGGGTGGTCCAGGAGGCAGTGTAG | 1080 | | | | | | | | |
| G K F R G F G Q P F G G L G G P G G S V | | | | | | | | | |
| GTGTTGGTGGTGGTTTCCCCCGGAGGCGGTTTAGGTGTAGGTGGTGGTGGTCTTGGTGTAGGTG | 1140 | | | | | | | | |
| G V G G G F P G G G L G V G G G L G V G | | | | | | | | | |
| GCGGTCTTGGTGTAGGTGGCGGTCTTGGTGTAGGTGGCGGTCTTGGAACTGGCACAAGCG | 1200 | | | | | | | | |
| G G L G V G G G L G V G G G L G T G T S | | | | | | | | | |
| ACTGCAGGTATTGGTGCAAGACTCCGGAGGGTCAAGCCTACTGCTGCGAGTCGGCCCACG | 1260 | | | | | | | | |
| D C R Y W C K T P E G Q A Y C C E S A H | | | | | | | | | |
| AACCAGAGACACCTGTTGGCACCAAGCCACTCGACTGCCCACAAGTCCGTCC | 1320 | | | | | | | | |
| E P E T P V G T K P L D C P Q V R P T C | | | | | | | | | |
| CACGTTTCCATGGGCCCCCCACAACCTGTTCCAACGACTACAAGTGTGCTGGCCTCGATA | 1380 | | | | | | | | |
| P R F H G P P T T C S N D Y K C A G L D | | | | | | | | | |
| AGTGTTGCTTCGACAGGTGTTTGGGAGAACACGTGTGCAAGCCTCCCTC | 1440 | | | | | | | | |
| K C C F D R C L G E H V C K P P S F F G | | | | | | | | | |
| CGCAGGTTTTCGGATGAAGAATAAGCACGAAAGAATTTGAAAGGATGAAGAAGAAGAAGA | 1500 | | | | | | | | |
| SQVFG- | | | | | | | | | |
| AAAGACCATCTGAAGAACGACCGATGTTTTGGAATTTGACTGAAAAAAGAAAG | 1560 | | | | | | | | |
| GGGAATTCTTTCTTTCTGTAGGATTTATCTGATTAACATGATTTTTGTTATATGTGAATT | 1620 | | | | | | | | |
| AGACTATTCTTCTGTCAAAAGAAACTTATAG | 1651 | | | | | | | | |

Crustin-like Lv gene (Type IIb)

B

| CAG | TCC | GTT | CGT | CGC | AGA | .GCA | AGO | GAGI | AAGI | CAT | FAC | AAA | GGT | GAG | GAG | GAGI | AAGC | CAA | .CAT | 60 |
|--|------------------------|-----|-----|-----|-----|------|-----|------|------|------|------|------|------|-----|------|------|------|------|------|-----|
| TAC | GAG | GCT | ATG | CTT | TGA | GTT | ACC | CAG | CTTI | [GG] | FTGI | ICC. | AAC | IGT | TTCI | TTT | AAAG | GTCA | TAG | 120 |
| AAA | CTC | TTA | CCA | ATG | ATC | GTG | TCZ | AAT | CACI | CAG | GAGA | ACA | AAA | IGC | TGTO | CCTC | GTGA | CAA | TTC | 180 |
| AAA | GCT | CAA | ATG | TCA | CTC | CAT | GA] | CT | [AA] | TCC | CGC | GTT | CGT | TTC | TTCC | CTTC | GTAG | ATG | CTG | 240 |
| | | | | | | | | | | | | | | | | | | М | L | |
| AAG | TTT | GTA | GTA | TTA | GCC | GTT | GTC | CGC | CGTC | GGC | CGT | GGC | GCA | CGC | GCAG | GAI | TAAA | GAC | AAG | 300 |
| K | F | v | v | L | Α | v | V | Α | v | Α | v | Α | Н | A | Q | D | K | D | Κ | |
| GCC | GGC | ACT | CGC | TTA | GGA | .GGA | GGF | ATTO | CGGC | GGTI | rcc: | rgg. | AGC | CGG | TGGC | CGTC | CTTC | CCA | .GGA | 360 |
| A | G | Т | R | L | G | G | G | F | G | V | Ρ | G | A | G | G | V | F | Ρ | G | |
| GCC | GGT | GGC | GTC | ССТ | GGA | .GTA | GG] | GGG | CGTO | CTT | rcc: | rgg. | AGC | CGG | TGGC | CGTC | CTTC | CCT | GGA | 420 |
| A | G | G | V | Ρ | G | V | G | G | V | F | Ρ | G | Α | G | G | V | F | Ρ | G | |
| GCC | GGT | GGT | ATC | GGT | ССТ | GGA | CCC | CGG | CGGC | ССТС | CAT | CCC | CGGZ | AGG | CGGF | ATTO | CAAC | CTGC | AAT | 480 |
| A | G | G | I | G | Ρ | G | Ρ | G | G | L | I | Ρ | G | G | G | F | Ν | С | Ν | |
| TACTGCAGGACGCCCGTCGGGTACGTCTGCTGCAAGCCCGGTAGGTGCCCTCCGGTTCGA | | | | | | | | | | | | | CGA | 540 | | | | | | |
| Y | С | R | Т | Ρ | V | G | Y | V | С | С | Κ | Ρ | G | R | С | Ρ | Ρ | V | R | |
| GAC | GTC | TGC | CCG | TCG | ACC | CGC | TTC | CGGI | ACCO | CCC | GGT | CTG | CCG | CCA | GGAC | CCTC | GGAC | CTGC | TCC | 600 |
| D | V | С | Ρ | S | Т | R | F | G | Ρ | Ρ | V | С | R | Q | D | L | D | С | S | |
| GGC | TCC | GAC | AAG | TGC | TGC | TAT | GAC | CGT | CTGC | ССТС | GGAA | AGA | CAC | AGT | CTGC | CAAF | ACCC | CATC | GTG | 660 |
| G | S | D | Κ | С | С | Y | D | V | С | L | Ε | D | Т | V | С | K | Ρ | I | V | |
| GCAGGTTCTCAGGGATAAGCCTGCATGTGAAACTTATCAAGCCTTCGTTATCAAATAAAT | | | | | | | | | | | | | 720 | | | | | | | |
| A | G | S | Q | G | - | | | | | | | | | | | | | | | |
| GCT | GCTATAACTGTTAATTGTAAAT | | | | | | | | | | | | 742 | | | | | | | |

Figure S2. Genomic nucleotide and deduced amino acid sequences of Type IIa Crustin Lv (**A**) and Type IIb Crustin-like Lv (**B**). The predicted signal peptides are in bold and underlined. The exon and intron sequences are shown in black and grey, respectively. A dash (-) marks the stop codon.