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Characterization of the male-specific lethal 3 gene in the oriental river prawn, *Macrobrachium nipponense*

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ABSTRACT. In this study, male-specific lethal 3 homolog (*Mnmsl3*) was cloned and characterized from the freshwater prawn *Macrobrachium nipponense* (Crustacea: Decapoda: Palaemonidae) by rapid amplification of cDNA ends. The deduced amino acid sequences of *Mnmsl3* showed high-sequence homology to the insect *Msl3* and contained a conserved chromatin organization modifier domain and an MORF4-related gene domain. Real-time quantitative reverse transcription-polymerase chain reaction showed that the *Mnmsl3* gene was expressed in all the investigated tissues, with the highest level of expression in the testis. The expression level of *Mnmsl3* between males and females was different in the gonad (testis or ovary), abdominal ganglion, and heart. The results revealed that the *Mnmsl3* gene might play roles in regulating chromatin and in dosage compensation of *M. nipponense*. Real-time quantitative reverse transcription-polymerase chain reaction also revealed that *Mnmsl3* mRNA expression was

significantly increased in both 5 and 20 days post-larvae after metamorphosis, suggesting that *Mnmsl3* plays complex and important roles in the early embryonic development and sex differentiation of *M. nipponense*.

Key words: Developmental expression; *Macrobrachium nipponense*; Crustacean; Male-specific lethal 3

