



# Genomic cloning, expression, and single nucleotide polymorphism association analysis of the insulin-like androgenic gland hormone gene in the oriental river prawn (*Macrobrachium nipponense*)

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**ABSTRACT.** Increasing evidence suggests that the insulin-like androgenic gland hormone (*LAG*) gene plays an important role in male sexual differentiation, metabolism, and growth in crustaceans. In the present study, we isolated the full-length genome sequence of *LAG* by genome walking based on the cDNA sequence in *Macrobrachium nipponense*. Four novel single nucleotide polymorphisms (SNPs) were studied, including 509G>T, 529G>T, 590A>T in intron 1, and 2226A>G in intron 2. The association of genetic variation with growth traits [body length (BL) and body weight (BW)] was analyzed. Individuals with GG geno-

type at locus 2226A>G maintained higher mean BL ( $P < 0.01$ ) and BW ( $P < 0.05$ ) than AA and GA individuals. These results suggest that *LAG* SNPs may be useful molecular markers for selecting growth traits in *M. nipponense*.

**Key words:** Oriental river prawn; *LAG* gene; Growth trait; Single nucleotide polymorphism