



Characterization and expression of *DDX6* during gametogenesis in the Chinese mitten crab *Eriocheir sinensis*

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ABSTRACT. DDX6 belongs to a family of DEAD-box RNA helicases, which are RNA splicing proteins that ensure the correct folding and structure of mature RNA. Gametogenesis requires the participation of many kinds of RNA. To explore its functions during *Eriocheir sinensis* gametogenesis, we cloned a full-length *DDX6* cDNA sequence from *E. sinensis* (*Es-DDX6*) which contains a 1536-nucleotide open reading frame encoding a 512-amino acid protein. Multiple sequence alignments showed that *Es-DDX6* has ten conservative DEAD-box family motifs. Tissue expression analysis of *Es-DDX6* mRNA and protein levels showed that *Es-DDX6* was highly expressed in both the ovary and testis. qRT-PCR analysis revealed the widespread expression of *Es-DDX6* mRNA during various stages of gonad development peaking in October. In addition, immunohistochemical studies showed that oocytes and the spermatogonium and primary spermatocytes of testes contained high levels of cytoplasmic *Es-DDX6* and decreased expression levels in spermatids. Interestingly, there was no expression of *Es-DDX6* in these cells as they matured along the male reproductive system. Since oocytes and spermatocytes are active in meiosis and oocytes undergo

rapid growth in October, these results provide preliminary evidence that *Es-DDX6* plays a role in *E. sinensis* gametogenesis and oocyte growth processes.

Key words: DDX6; *Eriocheir sinensis*; oocyte growth; gametogenesis