

RNA-binding motif protein RBM22 is required for normal development of zebrafish embryos

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ABSTRACT. RBM22 is a newly discovered RNA-binding motif protein, belonging to the SLT11 family; it has been reported to be involved in pre-spliceosome assembly and to interact with the Ca²⁺-signaling protein ALG-2. However, previous studies have not demonstrated whether its expression is essential for early embryogenesis in vertebrates. We utilized zebrafish as a developmental model to study the role of RBM22 during embryogenesis. The aligned protein sequences of RBM22 were found to be highly conserved. *In situ* analysis showed that zRBM22 was expressed as early as the one-cell stage, implying maternal origin during oogenesis; embryos continued to express zRBM22 through at least the 32-h post-fertilization (hpf) stage of development. RT-PCR analysis confirmed the *in situ* expression pattern, indicating that RBM22 is expressed without any spatial and temporal specificity during zebrafish development. zRBM22 morpholino-induced alterations in development were observed as early as 15 hpf of embryogenesis, based on a morphological analysis. Embryogenesis was monitored through 32 hpf; knockdown resulted in a truncated axis and developmental arrest of the head and tail. We conclude that RBM22 plays an important role in zebrafish embryogenesis.

Key words: RNA-binding motif protein; RBM22; Morpholino; Zebrafish; Embryo development